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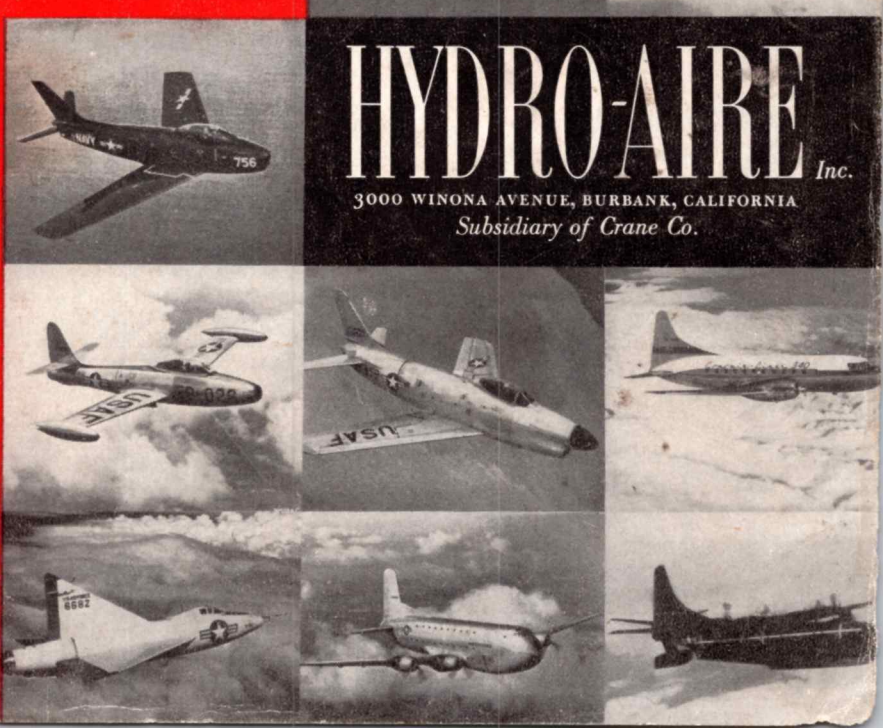

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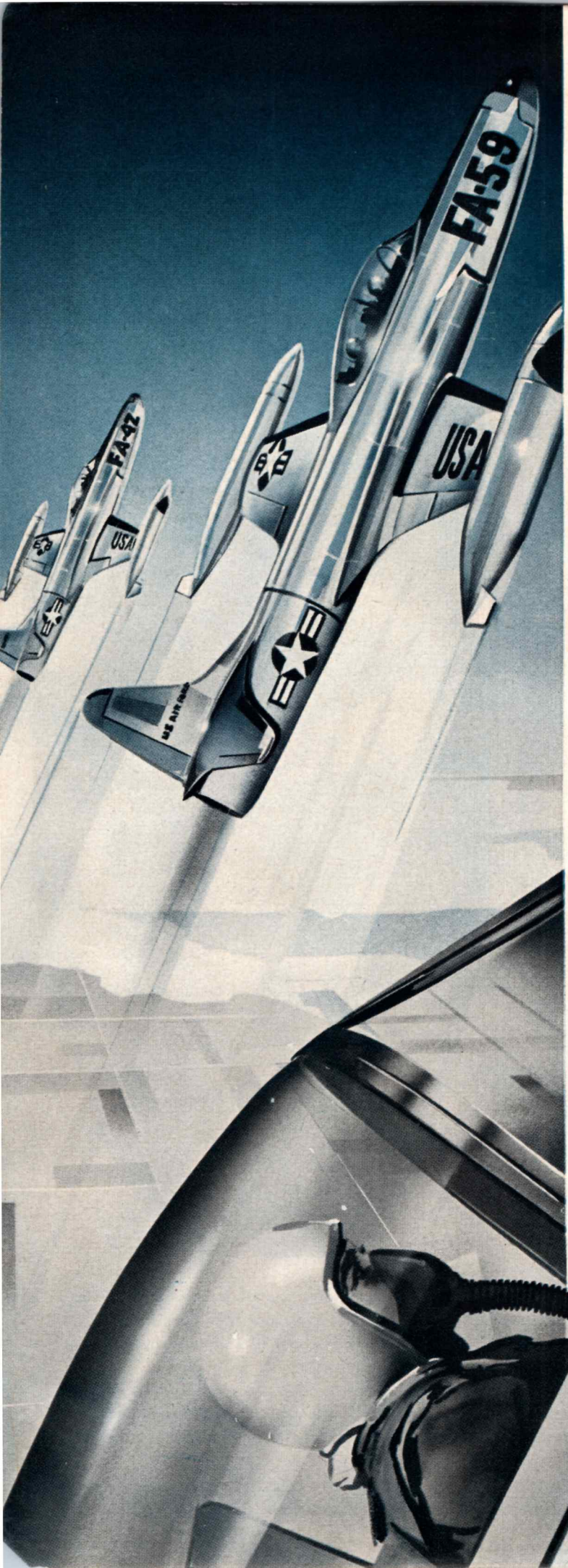

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VOLUME 68 NUMBER 3 MARCH 1954

15th ANNUAL DIRECTORY ISSUE

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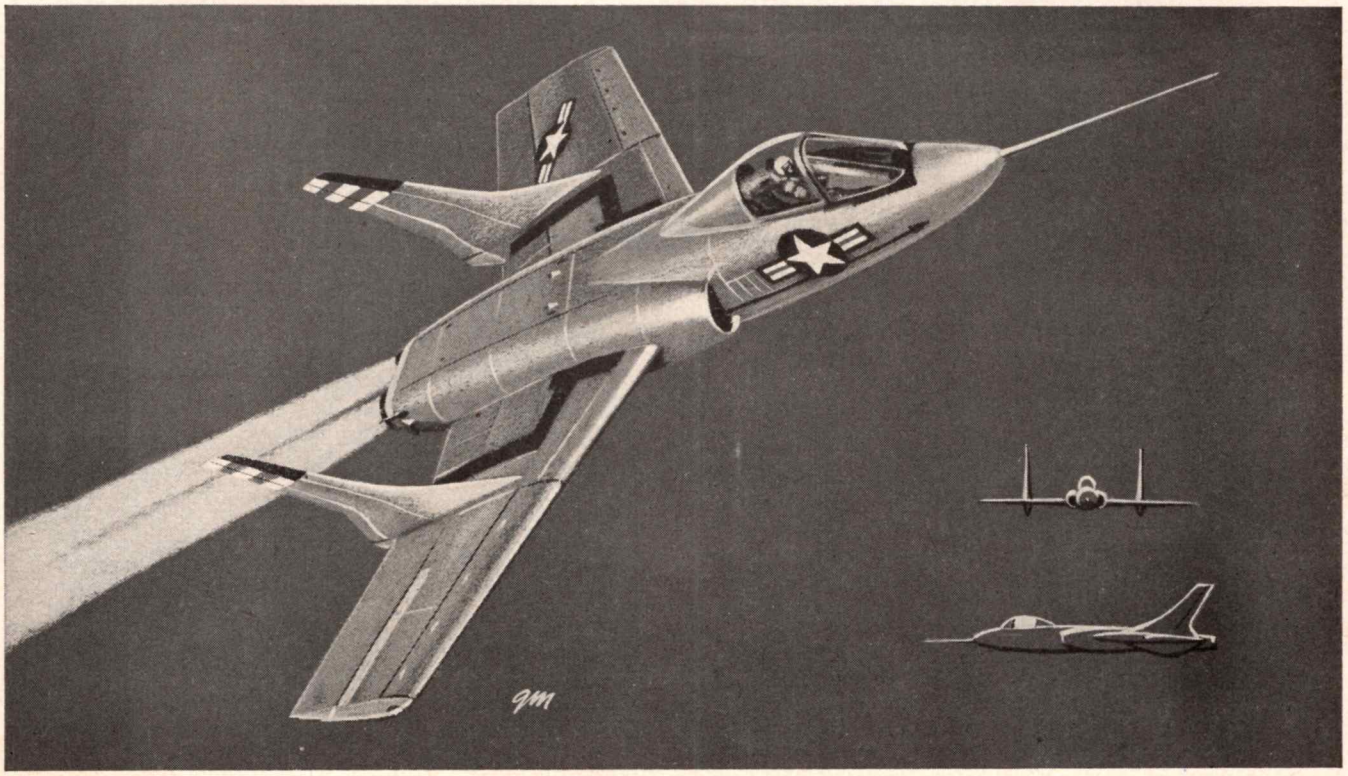

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AERO NEWS DIGEST

RADAR FOR TRANSPORTS will be airborne before the end of this year, we learn from Bendix Radio Division, Bendix Aviation Corporation, who report a land-office demand for their $15,000 unit, now in final development stage. Plans call for a unit to be turned over to Pan American Airways as soon as Bendix has checked it out. Pan Am will iron out operational wrinkles, and production models should begin showing up early in '55. Why airlines are so eager to have $15,000 added to electronics costs in transports, which already average some $25,000, may be summed up in a word: traffic. The sky, especially around airports, is getting so crowded these days that airborne radar is considered a necessity in the plane of tomorrow.

° ° °

CHOSEN INSTRUMENT • **Perhaps one of the most ironic, and unquestionable significant, event in the history of U. S. airlines came the other day with a Supreme Court decision against the Civil Aeronautics Board. The court ruled unanimously that excess profits from domestic operations of an airline must be offset against its international subsidy requirements. Irony lies in the fact, that, although Pan American Airways had nothing to do with the case whatsoever, the decision opens the door to Pan Am's achieving a goal for which that line has pressed almost since it began operations: monopoly of all foreign routes under a "chosen instrument" policy. And another outsider—the U. S. aircraft engineer—is responsible for one of the aces in this high-stake poker game.**

• ° °

PAN AMERICAN'S chosen instrument case, for which they campaigned intensively, first came into national prominence just before the war. Airlines run by foreign governments, Pan Am contended, had no competitors. Heavily subsidized, they were the chosen instrument of the foreign power concerned, and a powerful diplomatic tool. To compete with them, the United States should enter one airline in the foreign field—Pan Am.

° ° °

THE CIVIL AERONAUTICS BOARD, Federal arbiter of the airlines, ruled differently with approval by the President. Competition, it contended, was part of the American way of life, abroad as well as at home. The Board granted franchises to other domestic lines for foreign routes. Among those getting certificates, to use their current names, were Delta-Chicago & Southern Airlines, Braniff International Airways, Trans World Airlines and Northwest Orient Airlines. But all these lines have domestic as well as foreign operations. Pan Am is foreign only. The Supreme Court decision, against Delta-C&S, ruled, in sum, that Pan Am's foreign competitors had to use their profits from domestic operations to help pay the foreign subsidy bill. To oversimplify, a domestic-foreign line making 15 percent on its domestic investment and 5 percent abroad, must balance it off for an average return of 7.5 percent.

° ° °

ENTER THE ENGINEER • At this point, the domestic-foreign operators contend, the aeronautical engineer throws a monkey wrench into the operations. He is designing new and better transports so rapidly, and the competition is snapping them up so fast, that a large share of their apparently big profits have to be plowed back into new equipment if a line is to survive. Pan Am's rivals went into foreign operations with the understanding that a subsidy would cover them—and not eat holes in their domestic budgets. If that isn't the case—and the Supreme Court has ruled that it isn't—they'll have to get out.

° ° •

ONE PLACE TO GO • Getting out leaves them just about one place to go—Pan American, the self-elected chosen instrument. Insiders among the airlines expect offers from that line to the others to blossom all over this spring. The domestic-foreign operators have two possible alternatives. One is to incorporate their foreign routes into separate companies. But they have already lost millions as a result of the Court decision, and a test case might, after the usual delays, go against them, which would be disastrous. Legislation is the other choice: also time-consuming, costly, and unsure. Pan Am is willin', and the budgets of other lines are weak. . .

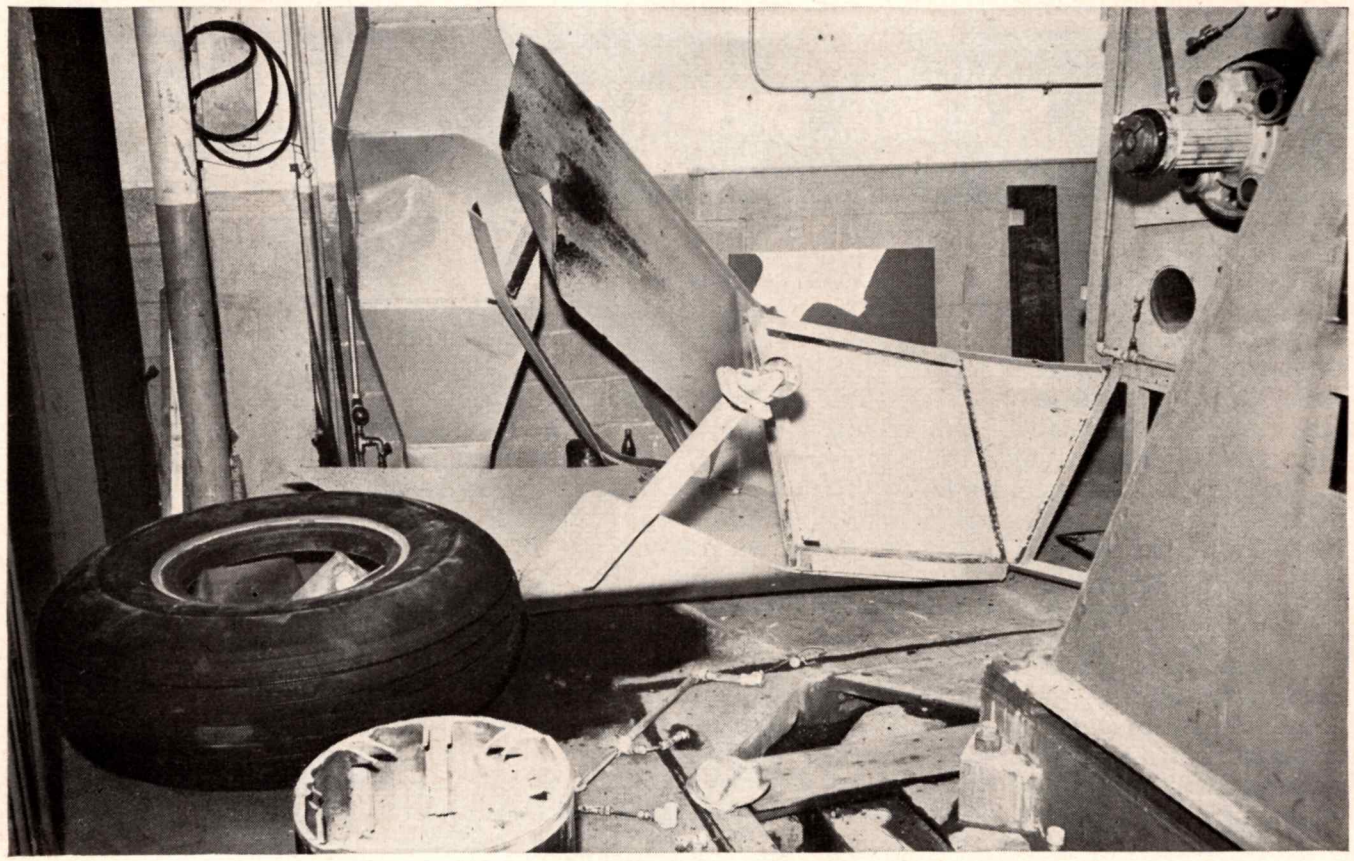
° ° •

ELECTRONIC WAR • If one day soon you're in the right place at the right time and an antiaircraft gun goes off, blowing a plane out of the sky, chances are you're witnessing nothing serious. It's only a war game involving Sperry and Ryan—Sperry's automatic anti-aircraft gun vs. the Ryan Firebee. Our information is that the gun usually wins. It can direct shells at the rate of 45 a minute at a target up to 15 miles in the air. The Firebee is nevertheless ideal in its role of target. A production, low-cost drone, about half the size of a piloted jet, it is powered by Fairchild's new J44 baby turbojet engine, developed by Fairchild and the Navy. Most powerful engine for its size, it has other uses, but these, so far, are classified.

• • •

NEWS ON HELICOPTERS is **again top-drawer, most significant this month being from J. B. Edwards, Chief Project Engineer,**

AERO launches NAMES IN THE NEWS column with Charles J. Higgins, new president of Best Aircraft Corp., Newark, N.J. See page 12 for additional names



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Douglas Aircraft Company, who says the vertical fliers may one day prove successors for the DC-3 as short-haul transports. Coming from the man who was Chief Project Engineer for the DC-4, DC-6 and DC-7, plus Chief Engineer for Hiller Helicopter for two years, the Edwards statement is significant, indeed. He salted it down with a few words of caution: a helicopter that will do the job is not on the immediate horizon and Douglas, despite the Edwards findings, isn't going to build one soon.

• • •

PASSENGER TRAFFIC • But even today, only seven years after the first commercial airworthiness certificate was granted a helicopter, 10 percent of the nation's population live in communities served by helicopter airlines. This is brought out in a recent survey by the Aircraft Industries Association, and although the statement is somewhat misleading, in that the communities in question are big-population Los Angeles, New York, and Chicago, and two of the three lines operating carry no passengers, progress of the whirlybirds in civilian life is not to be denied. With extensive efforts, notably by Piasecki, Sikorsky and Bell, to make new units bigger, and with ground transportation becoming daily more difficult, especially in metropolitan areas, the copter's bright future may dawn much sooner than can now be anticipated.

• • •

HELICOPTER COSTS • **The Port of New York Authority, top studypoint for anybody in the business of how to engineer all these traffic jams, believes in helicopters. But it doesn't believe in miracles and its top economic experts think it will be miraculous if the helicopter becomes a factor in breaking up commuter traffic snarls. Cost of operations — the closely-watched New York Airways is charging 50 cents per seat mile— plus need for peak-load equipment that will spend most of the rest of the day idle, are considered the two major roadblocks to general use of the whirlybirds in relieving commuter congestion.**

• • •

FOOT IN THE FUTURE • This is not to say that the Port Authority is anti-helicopter. This summer, Authority experts will complete an economic study of the machine. A heliport is already in experimental operation at the foot of Wall Street, another is being readied at the foot of Thirtieth Street, North River, and a third, for police use, will soon be in operation at the Battery. The Authority is spending additional folding money on operating a helicopter on its own from the roof of its home office in the middle of Manhattan to Port airports—La Guardia, International, Newark and Teterboro —and other outlying operations. On the optimistic side of the ledger, the Authority seldom puts blue chips down without eventually getting them back manyfold. Current Port net profits, for example, are running about 30 percent of gross income.

• • •

MYSTERY • **Another aeronautical mystery bothering the Port Authority currently is why more traffic isn't coming into Newark Airport. Its $8.5-million terminal building is nearly a year old, you can get to downtown Newark in 10 minutes and to mid-town New York in half an hour, and all-in-all it is the most convenient airport in the metropolitan area. But traffic continues to stay away in droves.**

• • •

NEW CORPORATION • Speaking of airports, Washington National Airport will be taken from the Civil Aeronautics Administration and converted into a corporation under Federal supervision, if a bill now before Congress is approved. Chief objective: to permit WNA, now handsomely solvent (estimated 1953 gross, $2-million, with a net of about 15 percent), to use its profits for improvements, rather than return them to the Federal treasury, where they now go. Also eliminated would be the annual necessity to go before the Budget Bureau and Congress for operating funds. Non-profit-making, the new corporation would be run by a board of directors probably appointed by the Congress.

• • •

THE YEAR 2003 • **We knew it was coming, but we didn't expect it so soon—the one-hundredth anniversary of powered flight in the**

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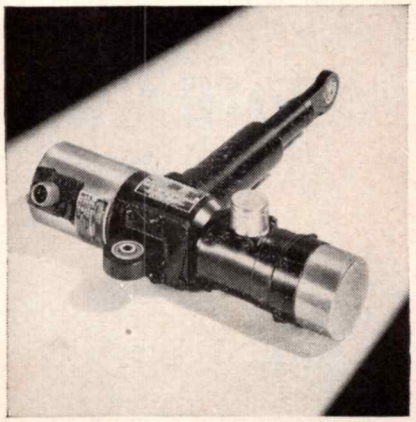
is years ahead



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The Chance-Vought Cutlass was an advanced design in 1947. It is a leader today. The same is true of Airborne's LINEATOR, which was developed for the Cutlass flight control system. Today, seven years later, there is not another "tee" type linear actuator like it.

The same basic model is used in the latest of the Cutlass series, and in the McDonnell Banshee. Modifications of the LINEATOR are specified equipment in the McDonnell Demon; its Air Force companion, F-101; and the Martin P5M patrol bomber.

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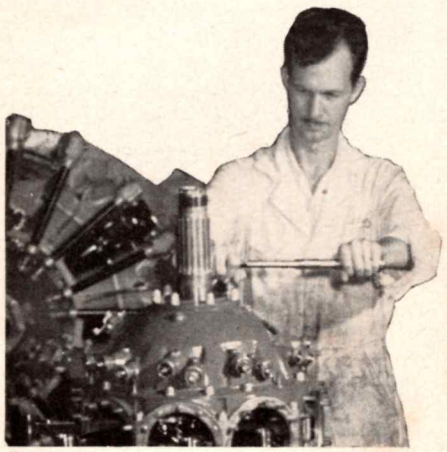

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year 2003. It is being celebrated at Republic Aviation Corporation currently in a novel report from the company to its employes. Actually a review of 1953 Republic activities, the report is a special edition of the Republic Aviation News, employee newspaper, bearing a dateline of January, 2003. From this vantage point, President Mundy I. Peale and other company officials look back to '53, the year when, among other things, Republic became the largest manufacturing employer in the New York City Metropolitan area, paying $138-million in wages to 29,000 employees from 246 communities. Honors for the novel report go to Leon Schloss, director of Republic public relations, and Ivan Sherman and Herb Doherty of that department. Art work, including a space-helmeted test pilot ready for a 2003 takeoff, is by Ray Pioch. Our latest word from Farmingdale is that Assistant to the President Ken Ellington is now grooming youthful, athletic Schloss for chairmanship of the real hundredth anniversary celebration, come the year 2003.

• • •

"GET GOING." • The house-organ circuit was particularly bright recently, another shining example in a lead piece in Boeing Magazine by Ken Calkins which tells, among other things, how one Lieutenant William L. Lee told President Eisenhower to "Get going!"—and made it stick. The time was May 19, 1937, the place an air field in the Philippines, and the President was an Army Lieutenant Colonel. The order had to do with Ike making his first solo—and he did all right. Lee, now a Brigadier General in vice command of the Thirteenth Air Force, also tells how Mr. Eisenhower once had to circle twice to make a landing because his stick was blocked by a sandbag in the rear cockpit. Again, flying with another lieutenant who today is Brigadier General Hugh A. Parker of the Alaska Air Command, the President and his pilot missed a crack-up on take-off by (according to Parker) a good margin of feet. Mr. Eisenhower still says it was only a few inches. We would be remiss not to add that the reason for Boeing Magazine running the article is that the President learned to fly in a Stearman primary trainer, one of the Boeing Kaydet series, and "probably the most used basic flight training airplane the United States had."

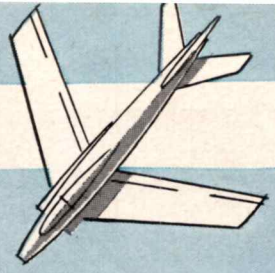
• • •

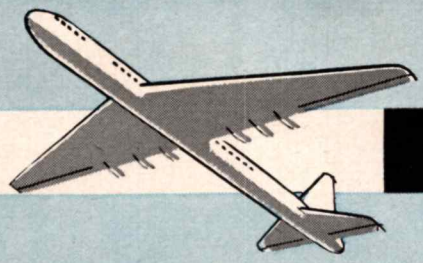
PTA'S TAKE NOTICE • Two articles of vital significance to the future of aeronautics—and of U. S. science as a whole—came up in the recent news. The longer one, by Fletcher G. Watson, writing in the February Scientific American, says that the shortage of scientists and engineers finds its roots, not in the colleges and universities, but in the high schools. Conditions are expected to get steadily worse unless school boards, parent-teachers associations and others concerned don't do something drastic about it. Mr. Watson points out that 67,000 science teachers are needed today for high and secondary school instruction and 100,000 will be needed by 1966. In the meantime, college sources for teachers are "drying up" because of decreased college enrollment and because "of all subject areas, science has the lowest yield to the teaching profession." Low teaching pay, and high demands from the military and business worlds, annually aggravates the problem. "It will take serious, thoughtful and cooperative efforts by all concerned—educators, parents, industry and government—to meet the needs in science education," the writer concludes. The shorter article was actually a newspaper story, reporting that between 50,000 and 60,000 engineers are working in airframe, engine, and aircraft-component plants throughout the nation. Some 30,000 engineers should be graduated annually to replenish this supply. Last year, total graduates was 20,000—10,000 short of the minimum goal.

• • •

NAMES IN THE NEWS • The Charles Nicholas Hickman Award for 1953 goes to Charles E. Bartley, Director of the Propellant Division of Grand Central Aircraft Company, Glendale, Calif., the American Rocket Society announces. ARS made the award to Mr. Bartley for "his many technical contributions in the field of composite solid propellants." . . . Robert

FIRST IN FUEL METERING





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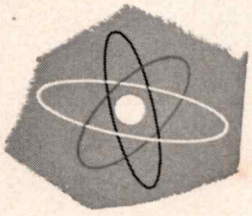

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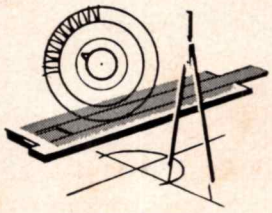

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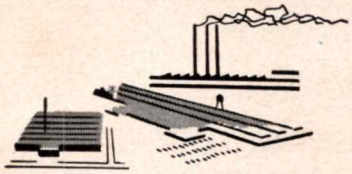

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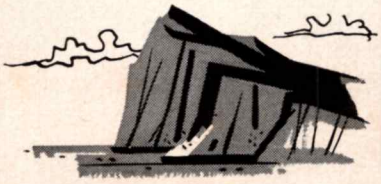
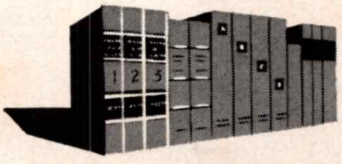
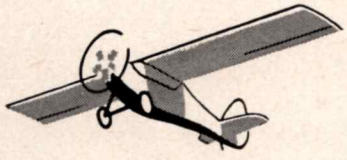


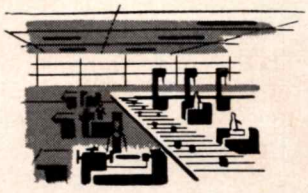
FINANCIAL STABILITY



SPECIALIZED KNOWLEDGE



PREVIOUS ACCOMPLISHMENTS



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LOWER COST

The fact that Bendix Products Division of the Bendix Aviation Corporation has specialized for more than thirty years in two highly technical phases of aviation—fuel metering and landing gears—makes this organization unique in the industry.

During this unparalleled record of service in engineering and manufacturing of vital aircraft components, every resource and facility of Bendix Products has been constantly expanded to meet the challenges of new plane and engine design. Bendix Products has done far more than just keep pace with the industry. It is no exaggeration to state that in instance after instance in the fields of fuel metering, landing gears, wheels and brakes, Bendix sets the pace by developments making possible greater speeds, heavier loads and increased safety.

Thus, today, Bendix Products accumulative knowledge of research, engineering and manufacturing offers to air frame builders and engine manufacturers the best solution to better products, quicker deliveries and lower costs in fuel metering, landing gear, wheels, brakes, and components.

Bendix Products Division

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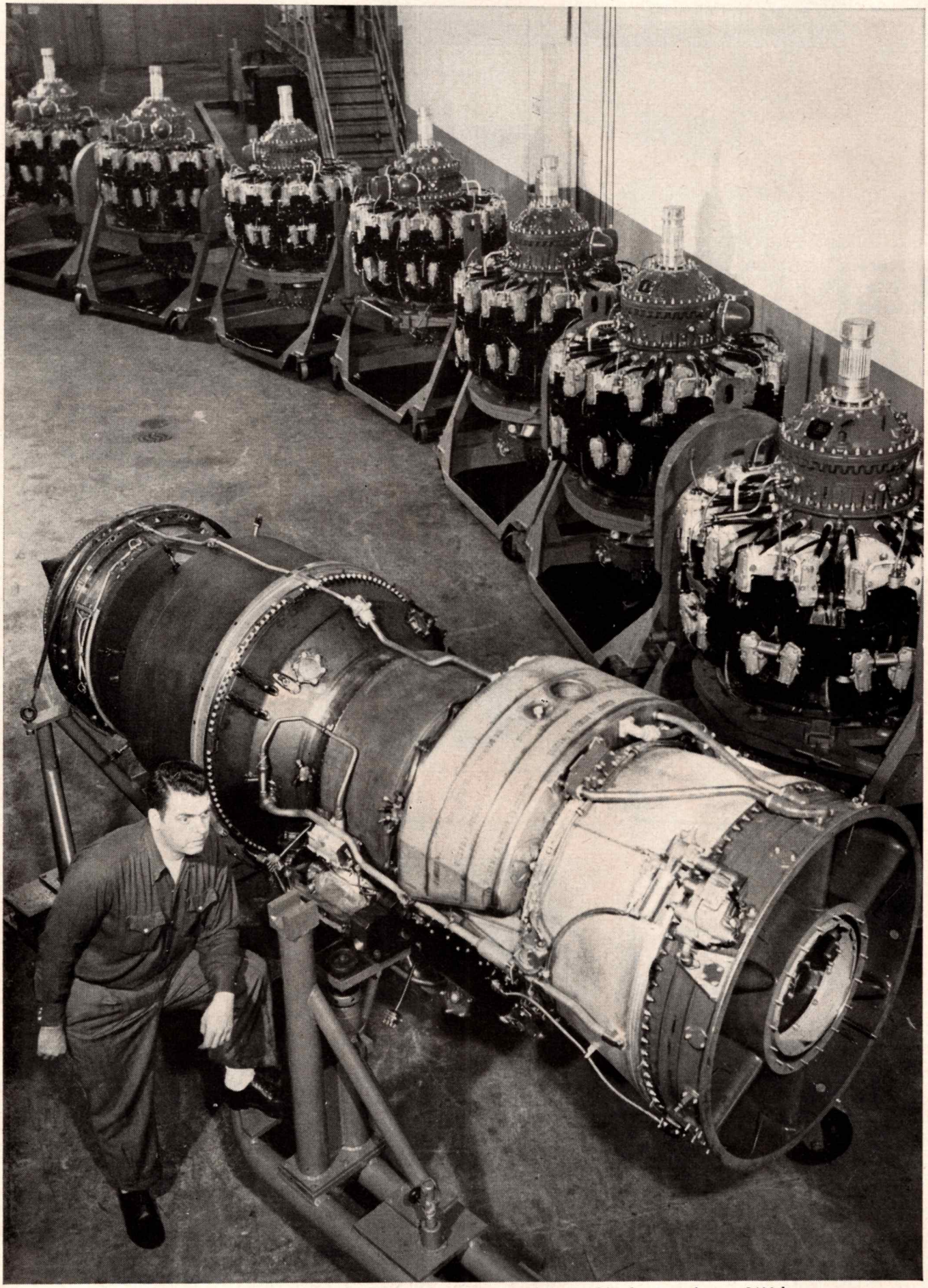
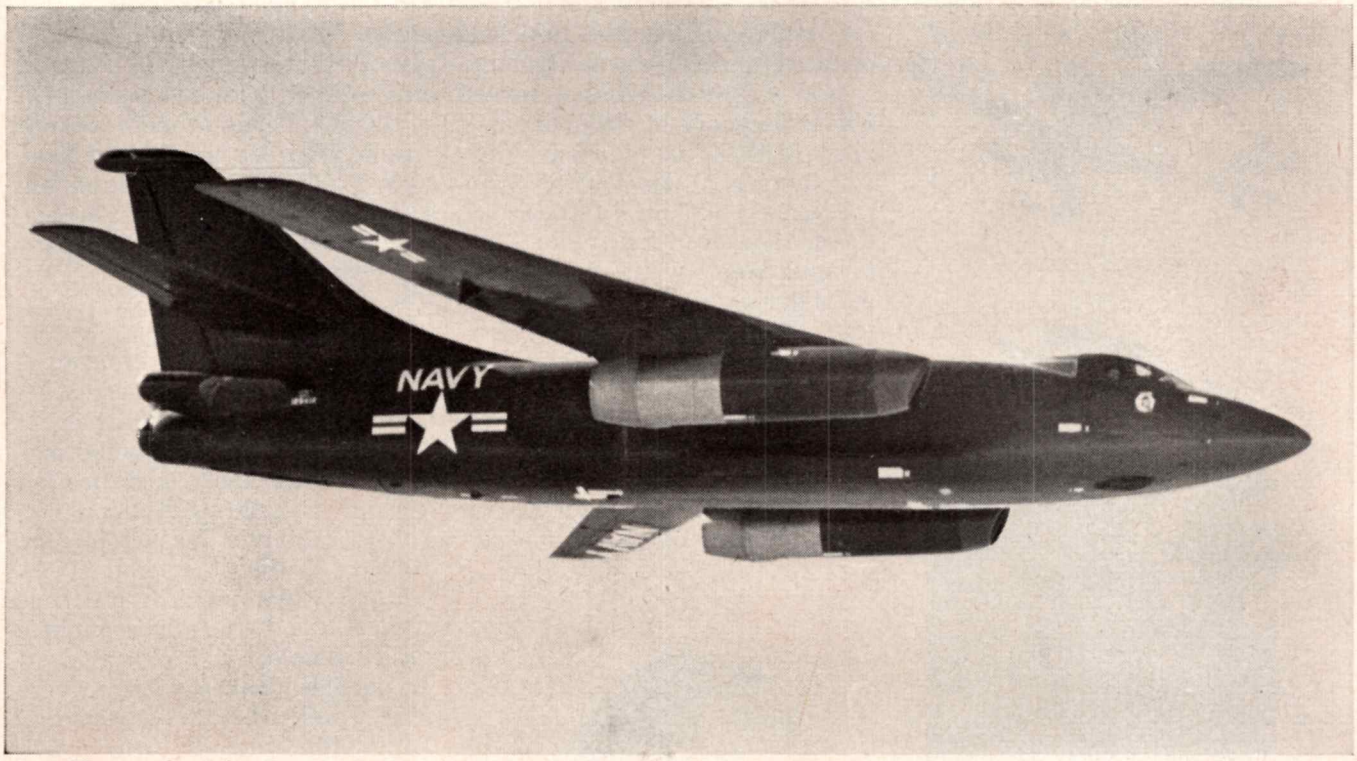


Pratt & Whitney Aircraft's compact J-57, pictured here, can exceed the combined power of seven 2400-horsepower R-2800 piston engines. It requires twice as many production tools to build as does the 18-cylinder R-2800 type.



The new far-flying Douglas A3D, powered by two Pratt & Whitney Aircraft J-57 turbojets, is designed to be the Navy's most potent carrier-based aircraft—a major addition to U. S. Air Power. It is in the 600-to-700 mile-per-hour class.

More Power Behind the Navy's Sunday Punch

As a product of creative aircraft engineering, the Navy's big Douglas A3D attack bomber ranks high, for no other known airplane of comparable size can carry an equivalent bomb load as high or as fast. And yet it is designed to operate from the decks of far-ranging Navy aircraft carriers.

A major reason for the A3D's outstanding performance is the complete integration of airframe and power plants. From its sleek nacelles to interior ducting, this outstanding new jet bomber is designed to take full advantage of the enormous power developed by its two Pratt & Whitney Aircraft J-57 turbojet engines.

Without afterburners, the 10,000-pound thrust class J-57s can easily push the big attack plane to fighter speeds and to operating altitudes in excess of 40,000 feet. Outstanding fuel economy of the J-57 engines gives the Douglas A3D the important advantage of increased range.

Before long, increasing numbers of these potent carrier-based aircraft will be rolling from assembly lines. With other J-57-powered bombers and supersonic fighters—a whole new generation of Navy and Air Force aircraft—they will become a vital part of American Air Power, giving this nation the air strength to deter possible enemies from attack, or to meet the emergency of war if it should come.

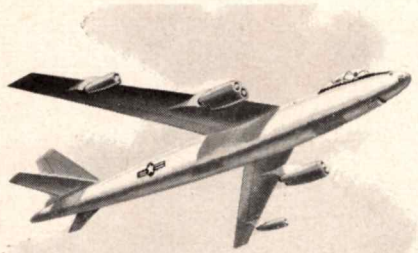
Pratt & Whitney Aircraft's J-57 turbojet engine is indeed fully justifying the long years and intensive effort required for its development and production.

Pratt & Whitney Aircraft

PRATT & WHITNEY AIRCRAFT — DEPENDABLE ENGINES

MAIN OFFICE AND PLANT: EAST HARTFORD, CONNECTICUT
BRANCH PLANTS: NORTH HAVEN, SOUTHINGTON, MERIDEN
In Canada: Canadian Pratt & Whitney Aircraft Co., Ltd.

ONE OF THE DIVISIONS OF UNITED AIRCRAFT CORPORATION



Giannini

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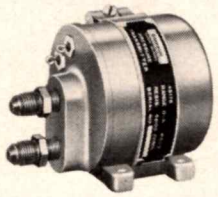
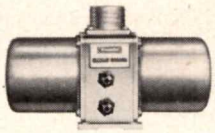
Giannini low pressure transmitters utilize a precision potentiometer element to translate pressure signals into proportional electrical signals (20-50 volts), requiring little or no amplification.



MODEL 45176

Models are available with single or multiple outputs, and can be linear with airspeed, altitude, pressure, or to natural or empirical functions.

Ranges from ±0.5 psi., diff. to 0-150 psi., (abs., diff., gage), under normal environmental conditions, or extreme conditions of high acceleration, severe shock or vibration. Write for complete engineering information.



MODEL 45177

G. M. GIANNINI & CO., INC.

AIRBORNE INSTRUMENT DIVISION

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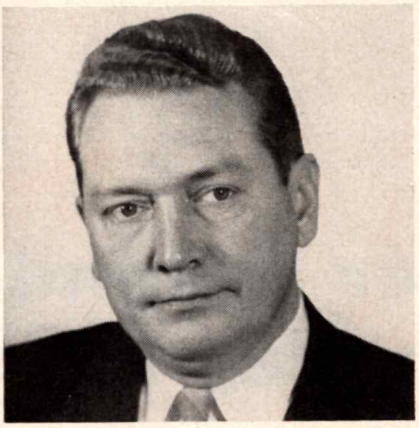
Giannini

Ramspeck, Vice President of Eastern Airlines, is the 1954 President of the Aero Club of Washington.

Note to **Earl D. Johnson,** former Under Secretary of the Army and new $42,500-a-year president of the Air Transport Association: Your predecessor, **Admiral Emory S. Land,** 75, walked four miles a day to and from work—some 8,000 miles during his eight years on the job. Didn't consider it exercise, either—for exercise he plays tennis about three hundred days each year. The Admiral will be around for a year, incidentally, as an ATA consultant.

C. J. Higgins, with Air Associates, Inc. in various sales and administrative capacities during the last ten years, has joined Best Aircraft Corp., of Newark, N. J. as President. **Fred Gebhardt,** also formerly with Air Associates, is now a Best Aircraft Vice President. The new corporation, at 210-212 W. Bigelow St., Newark, N. J., manufactures and distributes Army, Navy and specialty aviation products.



Frederick O. Detweiler is new president of Chance Vought Aircraft, Inc., newly-independent of its long United Aircraft ownership

Charles E. Planck, long a public relations tub-thumper for private flying and the Civil Aeronautics Administration, has received a silver medal and the Commerce Department's meritorious service award for his "outstanding services" to aviation. With CAA since 1940, Mr. Planck was aviation editor of the Detroit Free Press, 1919-27, and did public relations for airlines and airframe companies in the following decade. He is the author of Women With Wings, published by Harpers in 1943. . . **Frederick O. Detweiler** is President of the new Chance Vought Aircraft Corporation. He was General Manager, Chance Vought Aircraft Division, United Aircraft Corporation, before the new company was organized. Other Officers: **Admiral H. B. Sallada, USN (Ret.),** Vice President; **N. V. Turney,** Controller; **B. W. Whitten,** Treasurer, and **J. G. Gaffney,** Secretary. . .

Ralph S. Damon, President of Trans World Airlines, is the new Chairman of the Committee on Operating Problems, National Advisory Committee for Aeronautics. Robert N. Buck, veteran TWA pilot, was appointed at the same time to the NACA Subcommittee on Meteorological Problems. . . . **Jacqueline Cochran** receives the 1954 Frank M. Hawks Memorial Award for being the first woman to break the sound barrier.

Allan Chilton has been named Chief Engineer, Aviation Gas Turbine Division, Westinghouse Electric Corporation. He was formerly with the Curtis-Wright Corporation.

Roy Marquardt, President of Marquardt Aircraft Company, announces two new vice presidents—**William H. Schwebel,** Vice President-Finance, and **Don L. Walter,** Vice President-Operations. . . **Frank J. Macklin** is the new Assistant Vice President-Traffic, Air Transport Association. . . **Lieutenant Commander George W. Fey** is technical information officer for Navy's Bureau of Aeronautics, replacing **Lieutenant Commander Frederic M. (Buzz) Lloyd,** who is now at the Armed Forces Staff College, Norfolk, Va. . . **Raul H. Frye** is the new Vice-President-Engineering of National Company, Malden, Mass. . . **Harry A. Bruno** is President of H. A. Bruno & Associates, new public relations corporation title for an organization that has figured in aviation for three decades. . . **Russell D. Gudgeon** is Executive Vice President, and **Hudson Phillips** and **Theon Wright** are Vice Presidents. . . . **Martin V. Kiebert, Jr.,** former Chief of Navy Bureau of Aeronautics Guided Missile Branch, is now Chief Engineer, Tuner Division, P. R. Mallory & Co., Indianapolis. . .—FRED HAMLIN

look to **PIERCE**

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- **PRECISION PRODUCTION**

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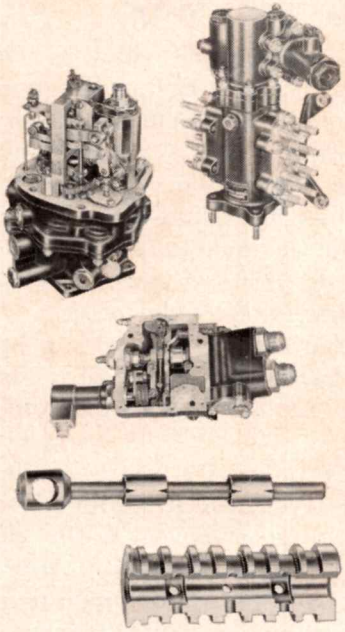
fuel controls
precision parts
and assemblies



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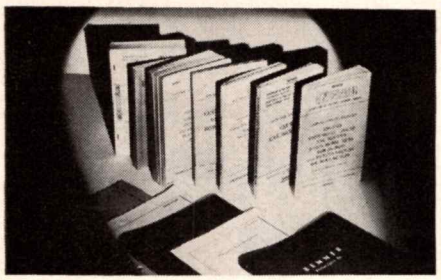

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PUBLISHER'S NOTE

We present with particular pride this, the Fifteenth Directory Issue of AERO DIGEST. It is a pride, not so much in the reporting that went into the material on the following pages, as in the achievements of aviation and allied industries of the United States. From a flat start after the cutbacks following World War II, these industries have led the airplane into the transonic regime and beyond, at the same time making practical but giant strides forward in harnessing the jet engine to workaday needs, and power and electronics to current defense demands. In sum, this issue of AERO DIGEST brings up to date the air power of the nation, a power outstanding and unchallenged in the world today.

One of the greatest advantages of a free nation is its freedom to communicate facts, and it is with added pride that we have, in this issue, participated in this effort. If, in its limited way, the Fifteenth Directory of AERO DIGEST serves to help the workers in the aviation industries of the United States further to advance the nation's air supremacy, the editors will consider their efforts doubly rewarded.

—FRED HAMLIN

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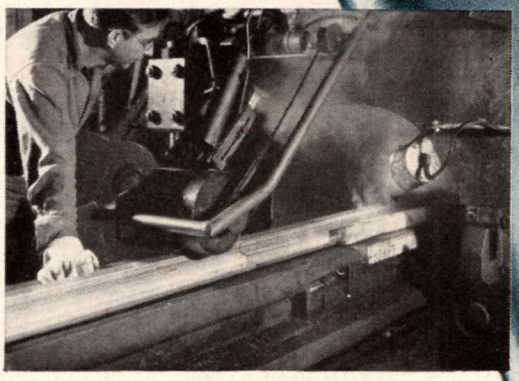

A medium sized extrusion of HZM-100 coming from one of the giant presses at the Harvey mill in Torrance, California. This new aluminum extrusion alloy, the strongest yet developed, offers new opportunities for the designer of highly stressed structures.

Harvey's metallurgical laboratories have developed an alloy for aircraft structural applications that combines optimum mechanical properties with maximum resistance to stress and stress corrosion. This superior alloy, designated HZM-100, has assured mechanical properties higher than any other aluminum extrusion alloy yet produced for the airframe industry. As design engineers begin to think in terms of speed double the speed of sound, weight and stress factors take on tremendous importance. HZM-100 now makes it possible for aircraft engineers to plan on extruded aluminum components with minimum cross sectional dimensions, maximum stress corrosion resistance and ultimate mechanical properties of 100,000 pounds per square inch. A Harvey Field Engineer is waiting for your questions. Get in touch with him today.

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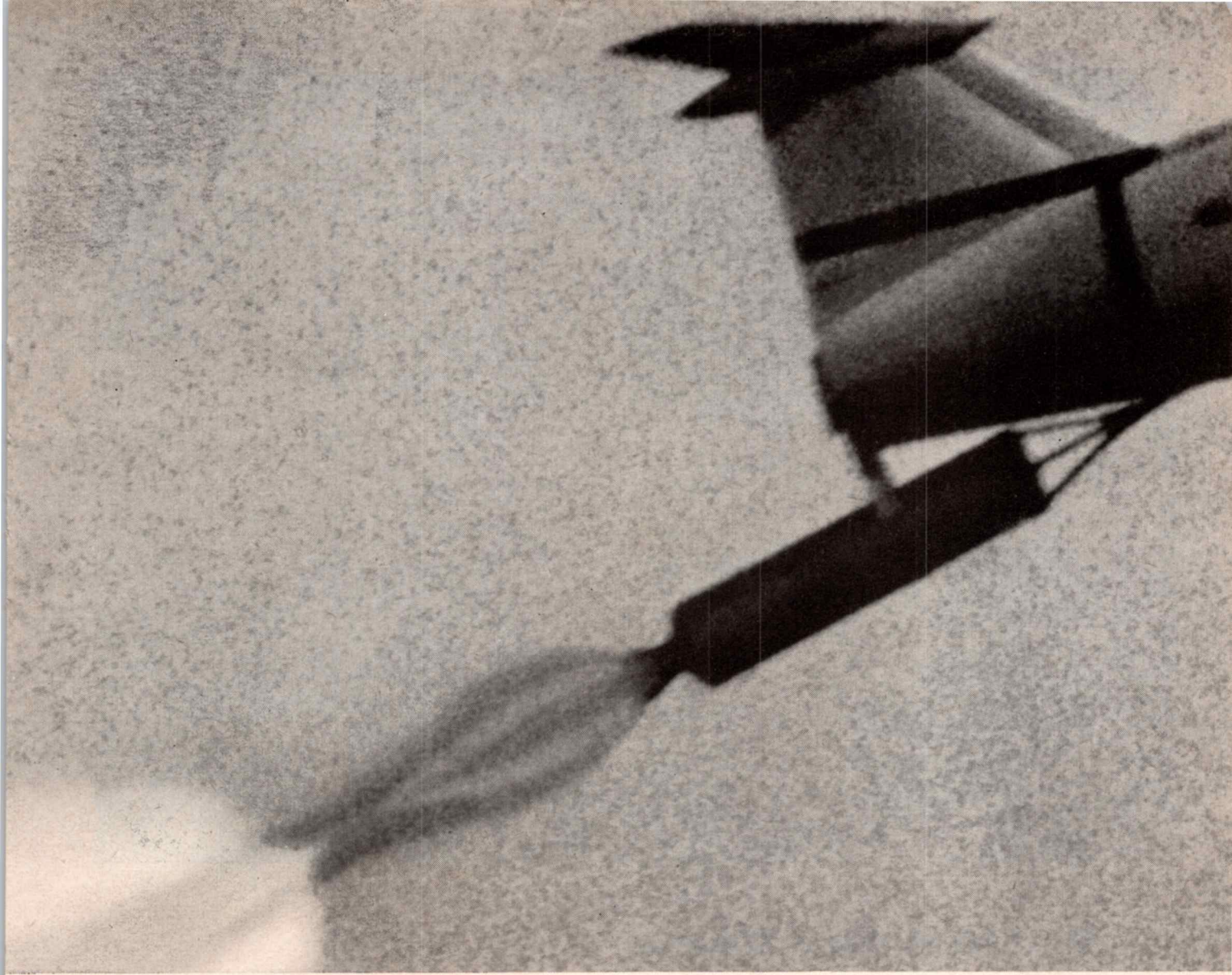

moment in history

You are looking at 1/1000 of a second in the history of aviation. It occurred at a fraction past 4:31 p.m. on January 20, 1949.

This was the Zero moment which marked the official launching of the first successful pilotless bomber to be approved by the U.S. Air Force—the Martin B-61 Matador.

The picture is historic for a very significant reason: it records the tradition-shattering payoff of an entirely new development in the aircraft industry, known as Martin Systems Engineering. This is a science and a method of developing spaceborne systems as total solutions of Operations problems.

The Martin Matador is far more than the thing you glimpse here. Behind it is an integrated network of facilities designed to give this important new weapon simplicity of operation and extreme mobility. These components add up to the total solution of one of the most formidable security problems of our time.

They also add up to one of today's most important developments: the full story of Martin Systems Engineering.

You will hear more about Martin!

Martin AIRCRAFT

THE GLENN L. MARTIN COMPANY
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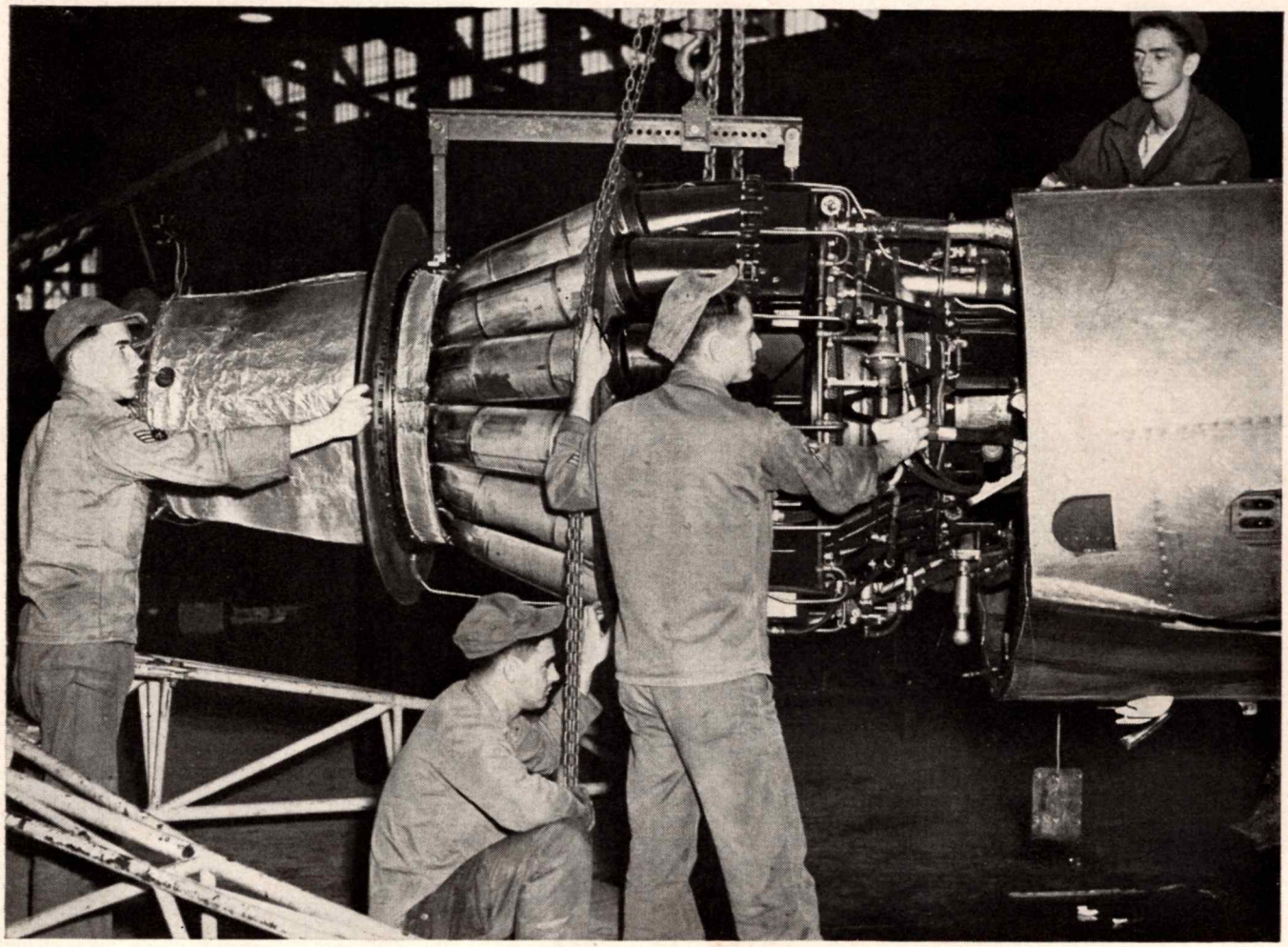


Pulled for Time— at 1200 hours

Two separate Air Force activities have demonstrated the increase in life and dependability of Allison Turbo-Jet engines.

An Allison-powered Lockheed T-33 Jet Trainer at Webb Air Force Base has flown 1200 hours without even minor repairs to the engine. Line maintenance by the men of the 3561st Maintenance Squadron backed up Allison engine design and manufacture to set this remarkable performance record.

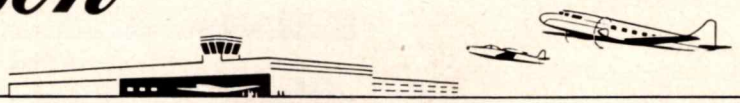
An Allison-powered Lockheed F-80 Shooting Star flew 1200 hours in combat and combat-alert service in Korea without major overhaul. That flight time adds up to more than 600,000 miles under tough combat conditions. The record represents a splendid job on the part of the 6160th Maintenance Squadron at Itazuke AFB, Japan.

Records like these are made by planes and engines—but it's the men behind the planes who make them possible. A hearty salute to the 3561st and 6160th Maintenance Squadrons for these splendid achievements.

GM GENERAL MOTORS

Allison

DIVISION OF GENERAL MOTORS, INDIANAPOLIS, INDIANA



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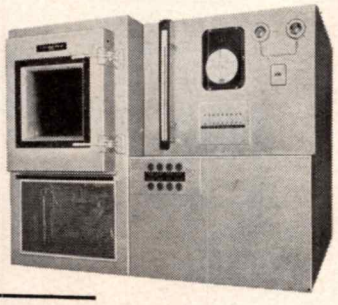

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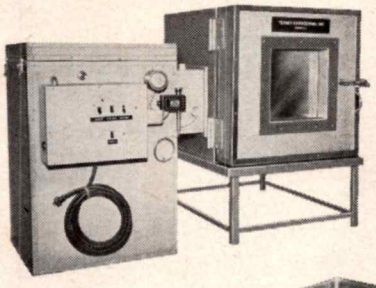
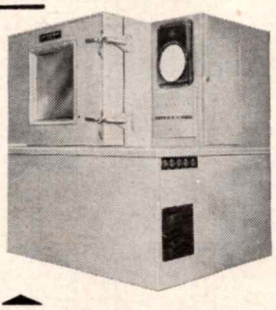
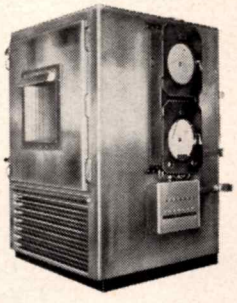
Portable air conditioning unit which may easily be attached to various types of laboratory enclosures —impact machines; tension machines; torsion testers; cold boxes and similar equipment. Through its use, articles undergoing testing, aging or weathering can be subjected to wide variations of humidity, heat and cold. Photo shows servo attached to companion chamber.



TENNEY TEMPERATURE AND HUMIDITY CHAMBERS

These chambers provide positive control of wet- and dry-bulb temperatures, humidity, and air circulation; and are designed for research and production testing of physical quality, fragility, tension, and all other pertinent factors, at constant conditions or on planned program cycles.





Model TR—Precision recorder controllers permit accurate simulation and check of temperatures to +200°F. Meets all Mil and JAN specifications for low- and high-temperature requirements by incorporation of temperatures down to —100°F. Humidities within 20%-95% range. Built in a variety of standard sizes.

Model TH—Specifically designed for a temperature range of +35°F to +180°F, and a humidity range of 20%-95%. Accurately simulates, controls, and checks all above-freezing temperatures. Can incorporate program control for meeting a wide variety of Mil specifications if desired. Manufactured in many standard sizes.

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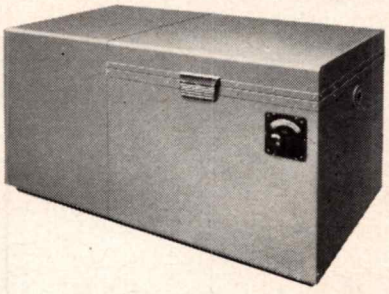

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AERO DIGEST

15th ANNUAL DIRECTORY NUMBER

This Fifteenth Anniversary edition of the famed AERO DIGEST DIRECTORY is especially dinstiguished by the first Directory of Guided Missiles and the first Directory of Jet Transports ever published.

Here, for the first time in public print, are the full details, three-view drawings and representations of the two types of aircraft attracting the most technical curiosity today, exclusive for AERO DIGEST readers.

Supporting this material are data, photographs and three-view drawings of all the military, transport, executive, personal and helicopter aircraft of the United States now in production or in widespread active service. All current aircraft engines — both piston and gas turbine — are described fully with specifications and photographs. Each of these sections contains entirely new aircraft and engines and photographs, drawings and data on more familiar types never before published.

The Directory section is the most up-to-date and comprehensive listing of aviation companies, their addresses and their executive personnel, providing a current, accurate fact-finder for the busy executive seeking the "who and where" for all his aviation needs.

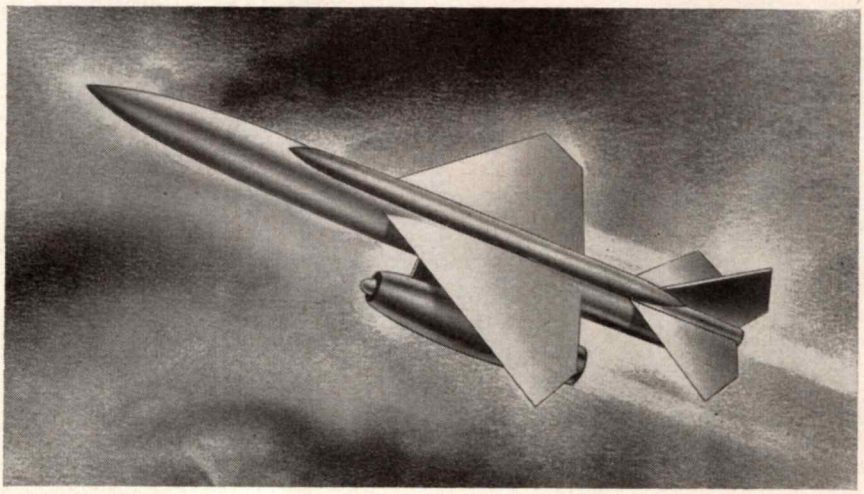
Robert McLarren
Editor

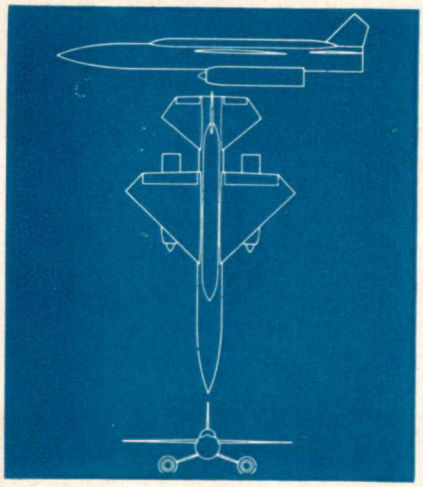
GUIDED MISSILES

BOEING AIRPLANE CO.

SEATTLE, WASHINGTON

BOMARC
XXF-99





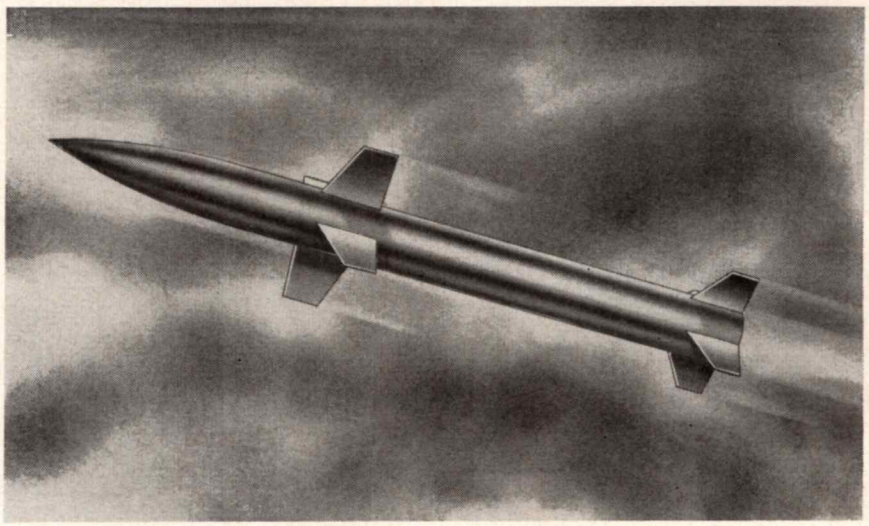
TYPE: Air-to-Air
SPECIFICATIONS: Span 36 ft.; Length 66 ft.; Height 16 ft.; Gross weight 8500 lb.; Propulsion two ramjet engines plus solid fuel booster rocket in tail.
PERFORMANCE: Speed M 2.0; Altitude 60,000 ft.; Range 50 mi.
GUIDANCE: Radar homing, beam rider, command guidance.

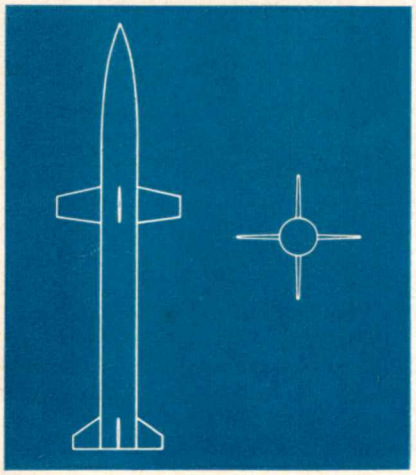
REMARKS: Pilotless interceptor, missile is launched from carrier at altitude and accelerates and homes to destroy target. First ramjet-powered tactical missile, design is culmination of extensive family of Boeing GAPA experiments in both rocket and ramjet fields. Scheduled for flight tests this year.

CONSOLIDATED VULTEE AIRCRAFT CORP.

POMONA, CALIFORNIA

TERRIER





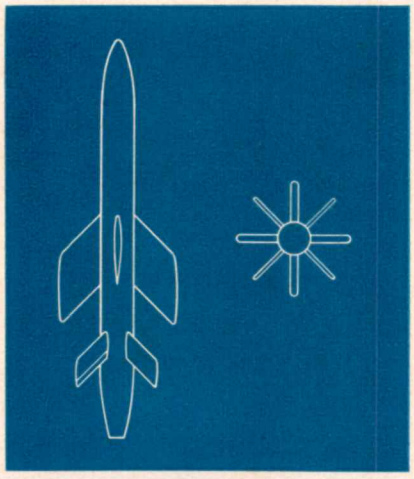
TYPE: Surface-to-Air
SPECIFICATIONS: Span 4 ft. 1 in.; Length 14 ft. 8 in.; Dia. 12 in.; Gross weight 3360 lb.; Propulsion solid-propellant rocket sustainer, solid rocket booster.
GUIDANCE: Radio command, radar seeking.

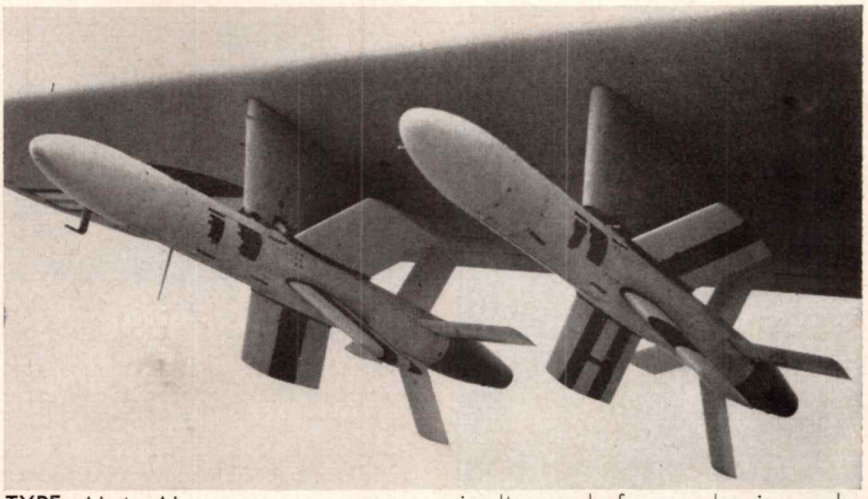
REMARKS: Under development since 1951, new missile is now in production in new Convair guided missile plant. It will be used in shipboard batteries as an anti-aircraft weapon.
PERFORMANCE: Speed M 2.0; Altitude 60,000 ft.

RYAN AERONAUTICAL CORP.

SAN DIEGO, CALIFORNIA

FIREBIRD



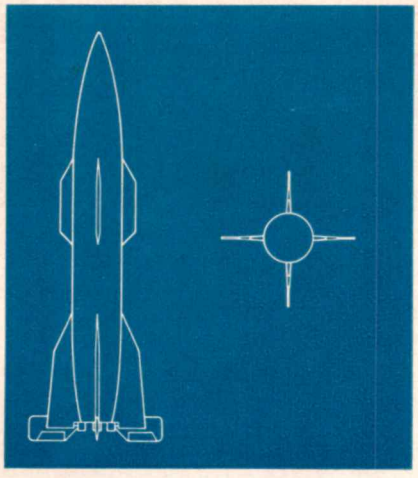


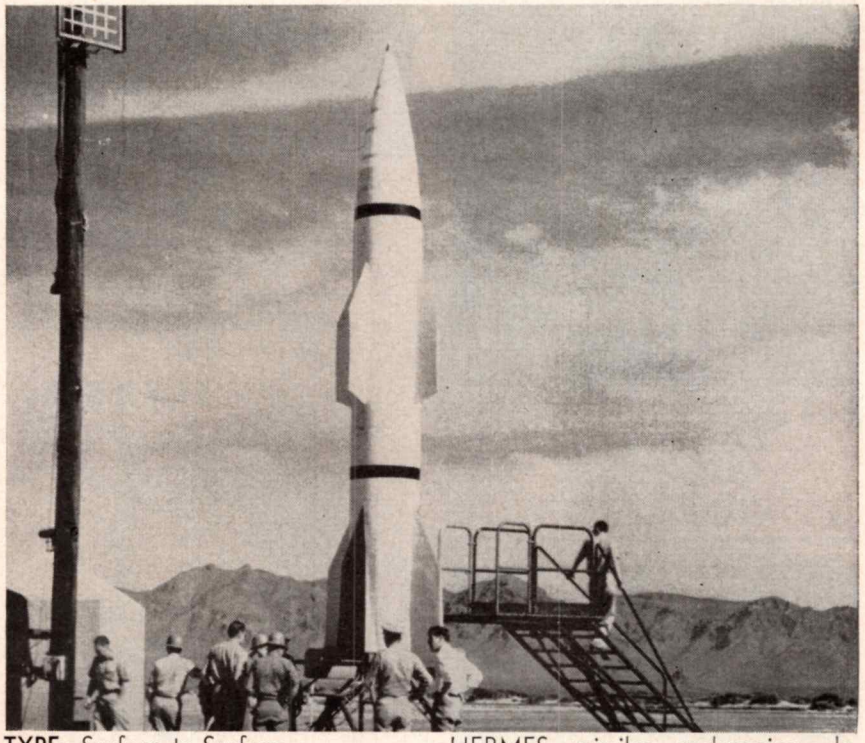
TYPE: Air-to-Air
SPECIFICATIONS: Span 3 ft.; Length 7 ft. 6 in.; Dia. 6 in.; Weight 600 lb.; Propulsion solid fuel bi-propellant rocket.
GUIDANCE: Radio direction, target seeking through radar homing.
REMARKS: First Air Force air-to-air missile, four have been launched simultaneously from underwing racks. Initial acceleration is by solid fuel booster unit with sustaining rocket motor in main body. Nose contains proximity-fired fragmentation charge. Production quantity produced in 1950 and missile proved in launching tests at Holloman Air Force Base, New Mexico during 1951-2.

GENERAL ELECTRIC CO.

SYDNEY, NEW YORK

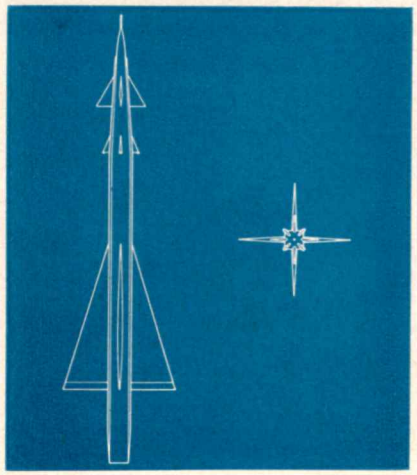
HERMES





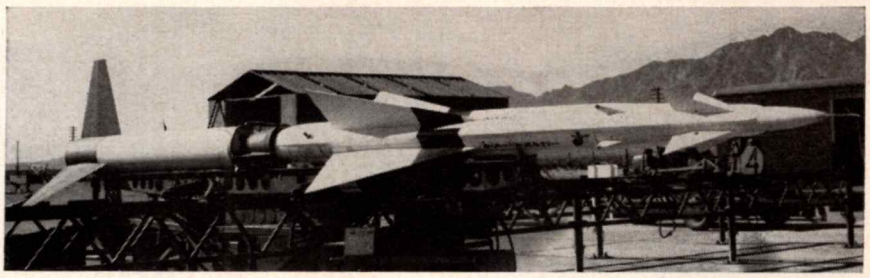
TYPE: Surface-to-Surface
SPECIFICATIONS: Span 7 ft. 8 in.; Length 25 ft., 7 in.; Dia. 2 ft. 8 in.; Gross weight 8,000 lb.; Propulsion liquid fuel rocket motor (nitric acid and aniline).
PERFORMANCE: Speed M 2.0; Altitude 100,000 ft.; Range 50 mi.
GUIDANCE: Radio guidance, beam rider.
REMARKS: First of a family of HERMES missiles undergoing development by General Electric Co. for the Army Ordnance Dept., the A.1 has the characteristics described. A.2 is similar but geometrically enlarged to gross weight of about 25,000 lb. A.3 is similar but lies between these two with a gross weight of about 12,500 lb. Used only for test work to date, will be latest anti-aircraft weapon.

NIKE



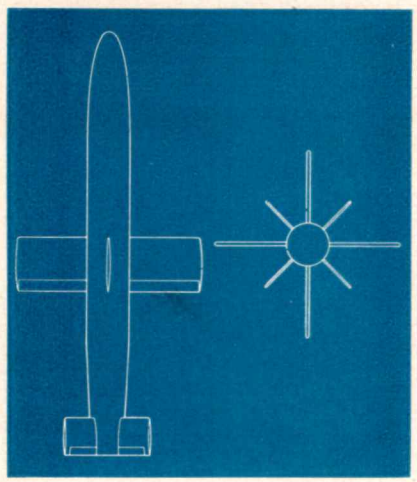
DOUGLAS AIRCRAFT CO. INC.

SANTA MONICA, CALIFORNIA



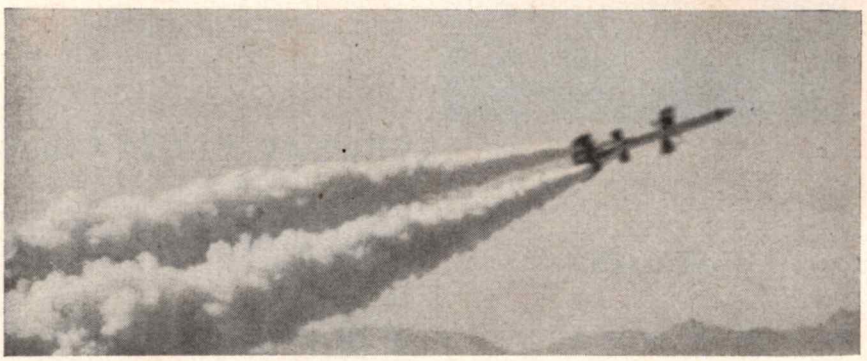
TYPE: Surface-to-Air
SPECIFICATIONS: Span 5 ft. 2 in.; Length 20 ft.; Dia. 12 in.; Gross weight 1,000 lb.; Propulsion liquid fuel rocket motor; Launching by solid fuel booster unit.
PERFORMANCE: Supersonic speed; Range 35 mi.; Effective 75,000 ft.
GUIDANCE: Beam rider with ground radar illuminating target and missile following this beam automatically.
REMARKS: First missile to enter full combat-ready service in U.S., NIKE batteries are now being formed. Guidance system by Bell Telephone Laboratories.

LARK



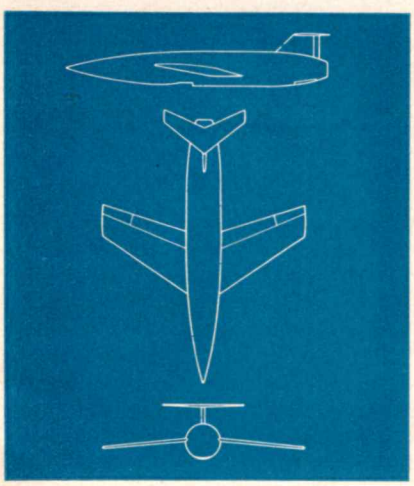
FAIRCHILD ENGINE AND AIRPLANE CO.

WYANDANCH, NEW YORK



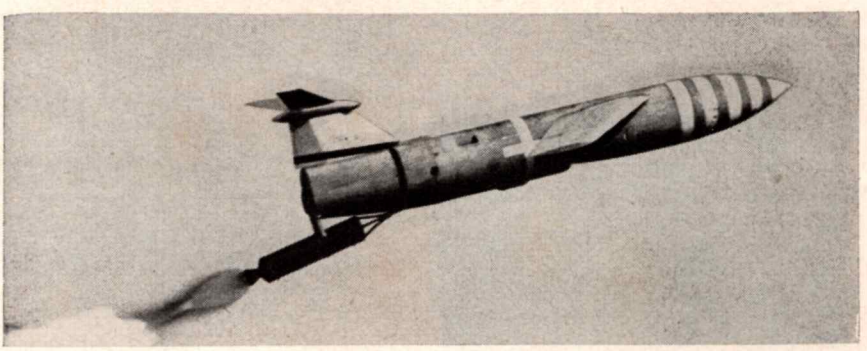
TYPE: Surface-to-Air
SPECIFICATIONS: Span 6 ft. 5 in.; Length 14 ft. 5 in.; Dia. 1 ft. 3 in.; Weight 1210 lb.; Propulsion liquid fuel rocket (red fuming nitric acid and aniline) with solid fuel rocket booster unit for launching.
PERFORMANCE: Sub-sonic.
GUIDANCE: Radio command.
REMARKS: Developed by Fairchild and Navy Bureau of Ordnance, missile is primarily training and test unit for development of guidance, launching and handling techniques.

MATADOR B-61A



GLENN L. MARTIN CO.

BALTIMORE, MARYLAND



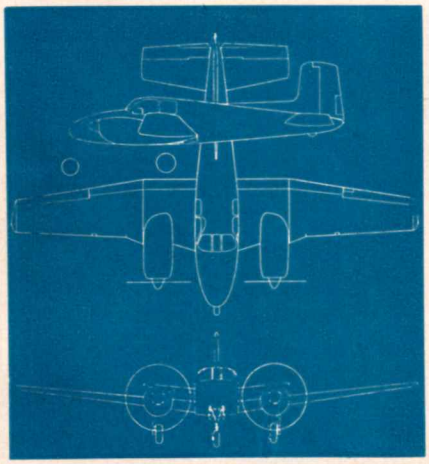
TYPE: Surface-to-Surface
SPECIFICATIONS: Span 28 ft.; Length 36 ft.; Height 7 ft. 6 in.; Gross weight 12,000 lb. Propulsion Allison J33-A-31, 4600 lb. static thrust @ 11,750 rpm.; Launching by solid fuel booster rocket.
PERFORMANCE: Maximum speed 660 mph. Range 550 mi.
GUIDANCE: Radio direction from ground station using radar intelligence.
REMARKS: Pilotless bomber, craft is conventional aircraft. Two B-61 squadrons are scheduled for transfer to Europe this year.

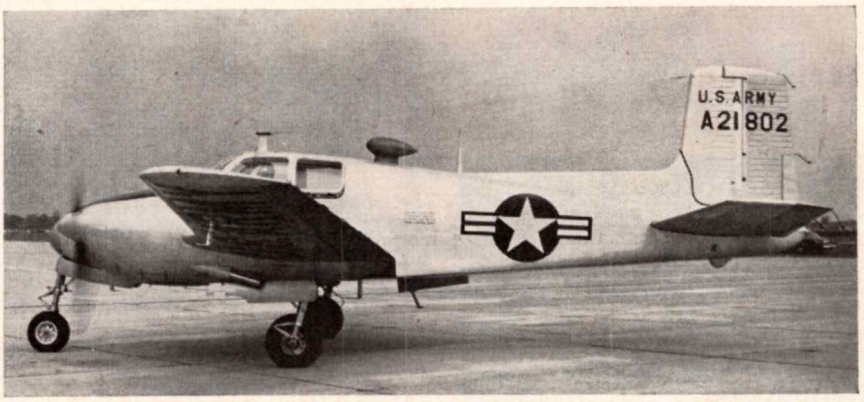
MILITARY

BEECH AIRCRAFT CORP.

WICHITA, KANSAS

BEECH YL-23





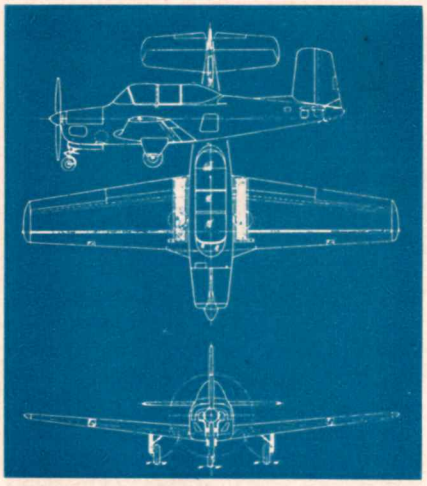
TYPE: Army Liaison, six-place

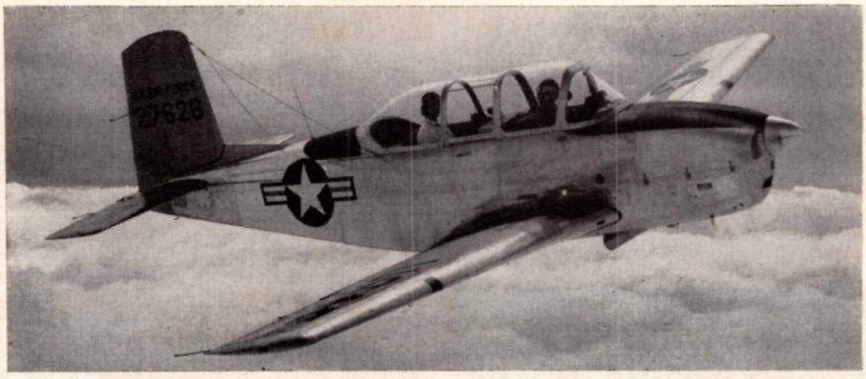
SPECIFICATIONS: Span 45 ft. 4 in.; Length 30 ft. 7 in.; Height 11 ft. 4 in.; Empty weight 3763 lb.; Gross weight 6075 lb. Engine (2) Lycoming GO-435-32, 260 hp at 3400 rpm at takeoff. Fuel 134 gal.

PERFORMANCE: Maximum speed 195 mph at 2500 ft.; Cruising speed 190 mph at 10,000 ft.; Rate-of-climb 1500 fpm; Service ceiling 19,000 ft.; Range 800 miles.

REMARKS: Delivery of four YL-23 to the Army Field Forces marks the first time a twin-engine airplane has been operated by this branch of the ing Staff Car" is used as a transport for general and staff officers of army and corps headquarters. The military L-23A differs from the civil model by the addition of special auto-pilot and radio installations. A large production order for the airplane is now being filled.

MENTOR T-34A





TYPE: Trainer, 2-place

SPECIFICATIONS: Span 32 ft. 10 in.; Length 25 ft. 11 in.; Height 9 ft. 7 in.; Empty weight 2055 lb.; Gross weight 2750 lb.; Engine Continental O-470-13, 225 hp takeoff; Propeller Beech 215-207 all-metal; Fuel 50 gal.; Electrical system 12-volt; Control surfaces metal-covered; Main gear 6.50 x 8; Nose gear 5.00 x 5.

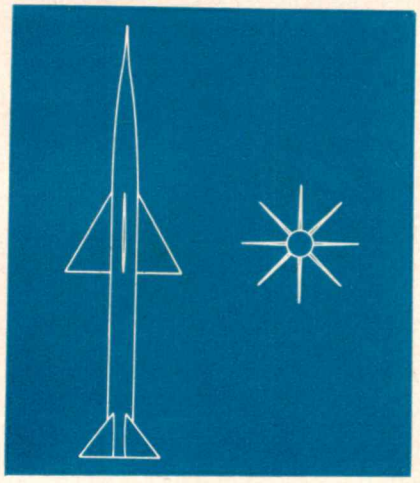
PERFORMANCE: Maximum speed at sea level 188 mph; Cruise 167 mph at 10,000 ft.; Maximum dive speed 280 mph IAS; Rate-of-climb 1210 fpm; Service ceiling 21,200 ft.; Fuel 10.8 gals/hour; Landing speed, Full flaps 54.3 mph; Landing distance over 50-ft. obstacle 820 ft.; Takeoff distance over 50-ft. obstacle 918 ft.

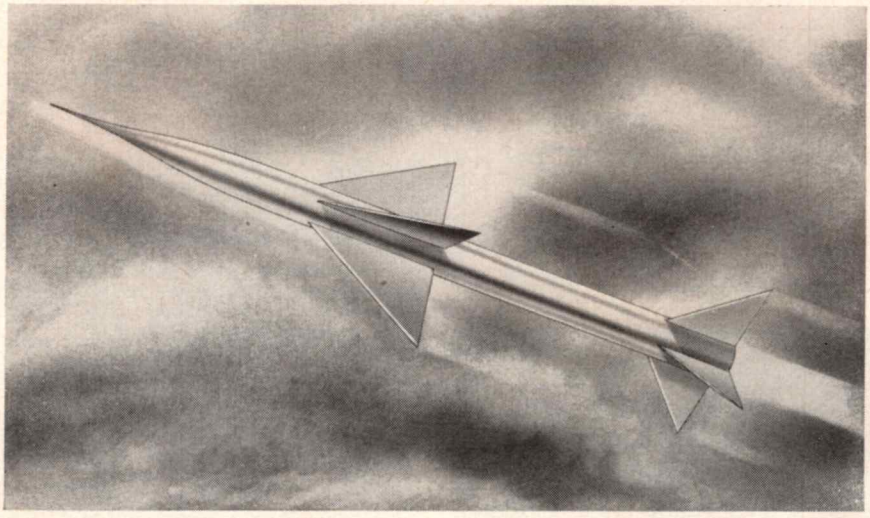
REMARKS: Now in production, light trainer has ultimate load factor of 10, permitting extreme maneuvers. Simulated bombing missions are accomplished by use of camera bomb scoring units, which function in lieu of practice bombs.

SPERRY FARRAGUT CORP.

BRISTOL, TENNESSEE

SPARROW





TYPE: Surface-to-Air

SPECIFICATIONS: Span 2 ft. 3 in.; Length 8 ft. 3 in.; Dia. 6 in.; Weight 280 lb.; Propulsion double-base solid propellant rocket.

PERFORMANCE: Speed M 3.0; Range 5 mi.

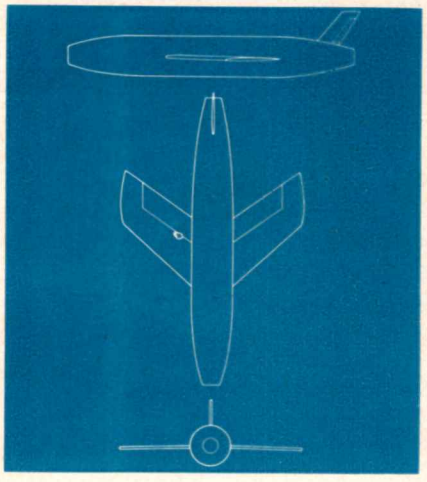
GUIDANCE: Radar beam rider.

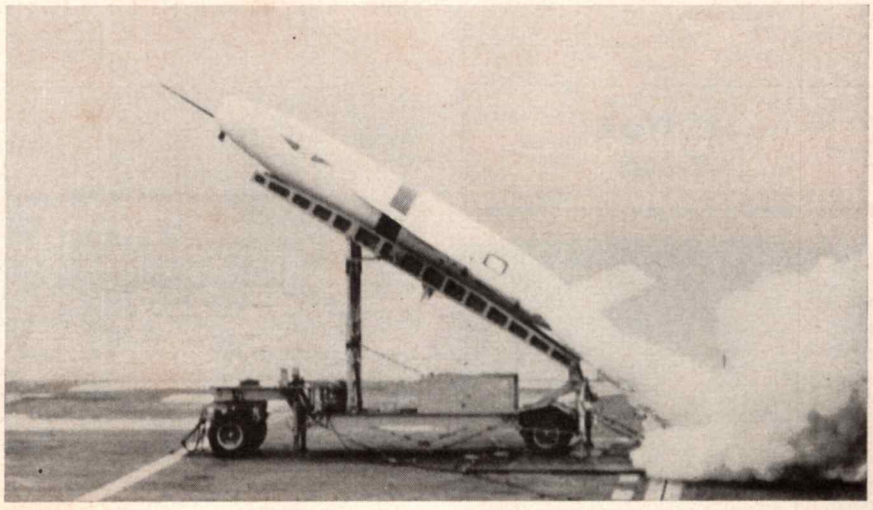
REMARKS: Developed especially for carrier use, new missile is anti-aircraft weapon to be installed in batteries throughout carriers and other vessels. Fastest production missile, the sleek destroyer is being built in special Navy-owned facility near Bristol, Tenn. It is especially designed and tooled for mass production.

CHANCE VOUGHT AIRCRAFT, INC.

DALLAS, TEXAS

REGULUS





TYPE: Surface-to-Surface

SPECIFICATIONS: Span 26 ft.; Length 40 ft. 2 in.; Height 9 ft. 6 in.; Gross weight 9000 lb. Propulsion Allison J33-A-10, 4000 lb. static thrust; Launched by two 1000 lb. solid fuel boosters.

PERFORMANCE: Speed 600 mph; Range 200 mi.

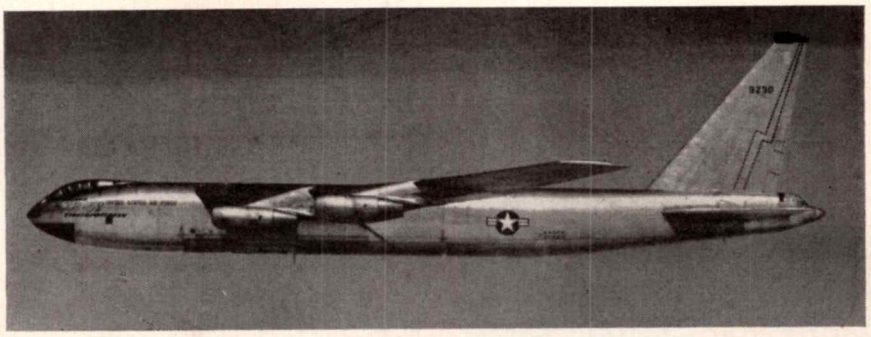
GUIDANCE: Radio direction, ASW guidance.

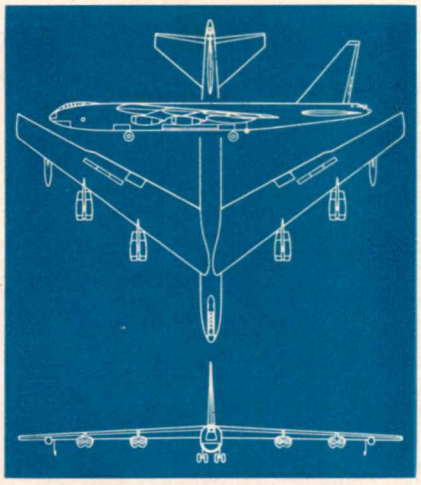
REMARKS: Designed for shipboard launching and radio guidance to vicinity target (surface or underwater) and homed into target. Navy missile is conventional pilotless aircraft using Vought-developed sandwich-core materials. Now in quantity production for tests and development, present plans are for assignment to Fleet units this year.

BOEING AIRPLANE CO.

SEATTLE, WASHINGTON

STRATOFORTRESS XB-52

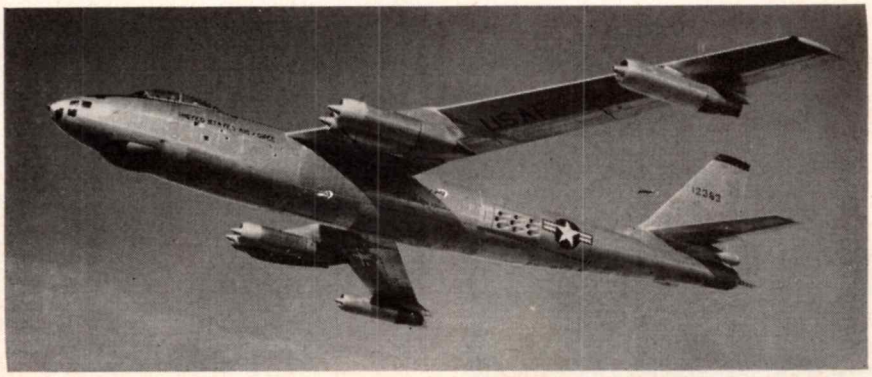


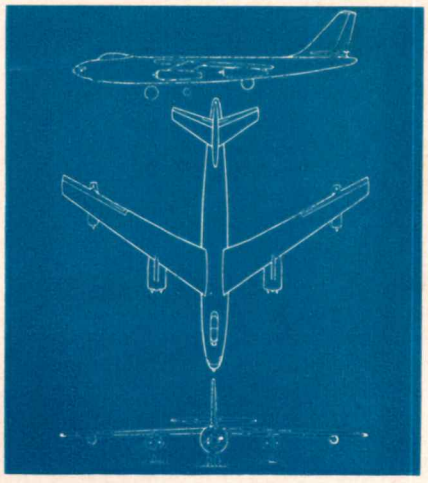


TYPE: Strategic Bomber

SPECIFICATIONS: Span 185 ft.; Length 153 ft.; Height 48 ft. Engine (8) Pratt & Whitney J57-P-3, more than 8500 lb. static thrust. Empty weight about 175,000 lb., Gross weight about 300,000 with maximum weight as high as 350,000 lb. **REMARKS:** It is the largest and heaviest military airplane ever built. Production order signed well in advance of YB-52 first flight on April 15, 1952. XB-52 flew month later, reversing usual order. Production B-52A models feature conventional transport-type flight deck and windows. Top speed of the monster bomber is about 650 mph, range with 25,000 lb. of bombs —including atomic — is more than 6,000 miles. Maximum bomb load of 75,000 lb. delivered over 3,000-mile range. RB-52A photo-reconnaissance version is scheduled for production, in addition to standard bomber version. The giant bomber is the most advanced aircraft modern science has yet produced with tons of specially-developed electronic and advanced combat equipment.

STRATOJET B-47E





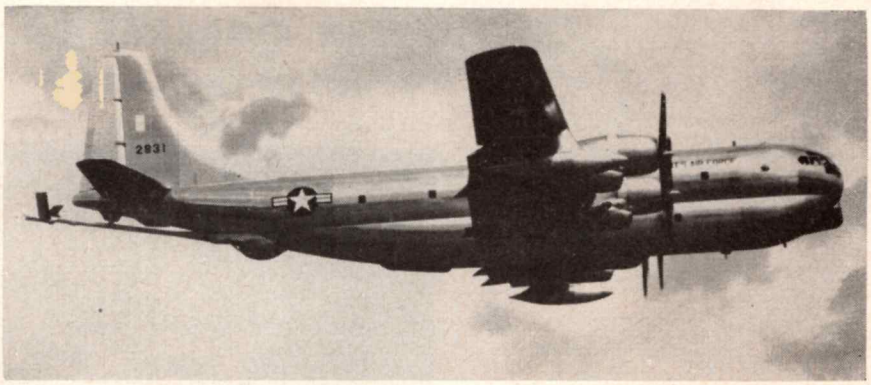
TYPE: Medium Bomber, crew 3

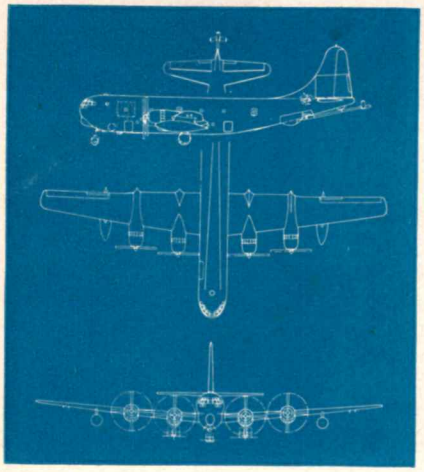
SPECIFICATIONS: Span 116 ft.; Length 106 ft. 8 in.; Height 27 ft., 11 in. Gross Weight 185,000 lb. Engine (6) General Electric J47-GE-23, 5800 lb. thrust ea. Bomb load more than 20,000 lb.

PERFORMANCE: Maximum speed more than 600 mph; Service ceiling more than 40,000 ft.; Range more 20,000 lb. Armament two .50-cal. in A-2 tail turret.

REMARKS: B-47 is in vast quantity production at wide variety of sub-contractors plants throughout the nation. Holds transcontinental speed record of 2289 miles in 3 hr. 46 min. at average of 607.8 mph. Design began in Sept. 1945 and prototype made first flight Dec. 17, 1947. First production model B-47A completed at Wichita plant Mar. 1, 1950. First Douglas-built B-47B flew Dec. 12, 1952 at Tulsa, Okla. plant. First Lockheed-built B-47B flew Dec. 16, 1952 at Marietta, Ga. plant. More than 500 in service. RB-47E version has extended nose for camera installations.

STRATOFREIGHTER KC-97G





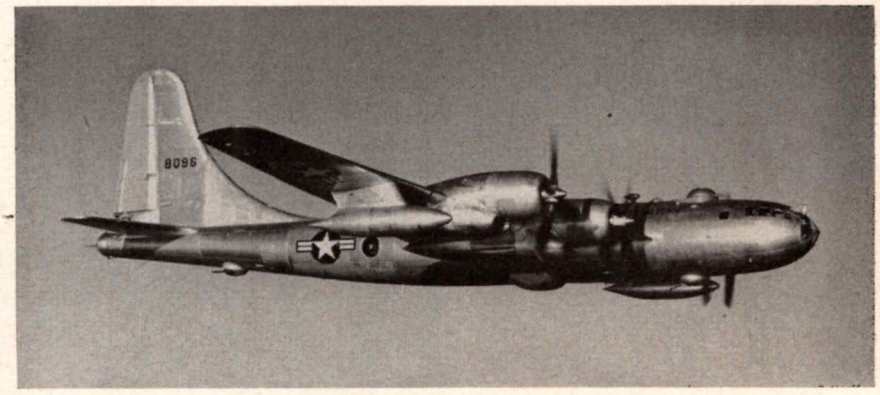
TYPE: Cargo, crew 5

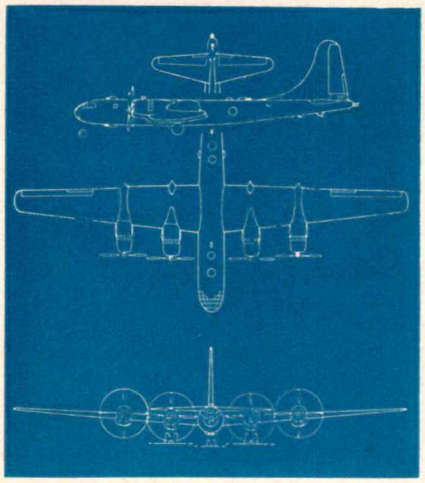
SPECIFICATIONS: Span 141 ft. 3 in.; Length 110 ft. 4 in.; Height 38 ft. 3 in.; Empty weight 85,400 lb.; Gross weight 153,000 lb. normal; Maximum gross 175,000 lb. Engine (4) Pratt & Whitney R-4360-59 Wasp Major, 3500 hp takeoff, 2650 hp normal rated. Propeliers (4) Hamilton Standard four-blade, constant speed, full feathering, reverse thrust 16 ft. 6 in. dia.; Fuel 7790 gal.

PERFORMANCE: Maximum speed 375 mph; Cruising speed more than 300 mph. Service ceiling more than 35,000 ft. Range 4300 mi.

REMARKS Convertible tanker-cargo-passenger transport. As KC-97 it is equipped with Boeing Flying Boom aerial refueling equipment to serve as flying tanker for fighter and bomber refueling. Cargo version carries a maximum of 68,500 lb. of heavy cargo such as jeeps, trucks and artillery. Passenger version accommodates 130 men, ambulance version up to 79 litter patients, medical attendants and supplies. New KC-97G is in volume production at Boeing Seattle plant for Strategic Air Command. Droppable fuel tanks, 700-gal. ea., extend range.

SUPERFORTRESS B-50D





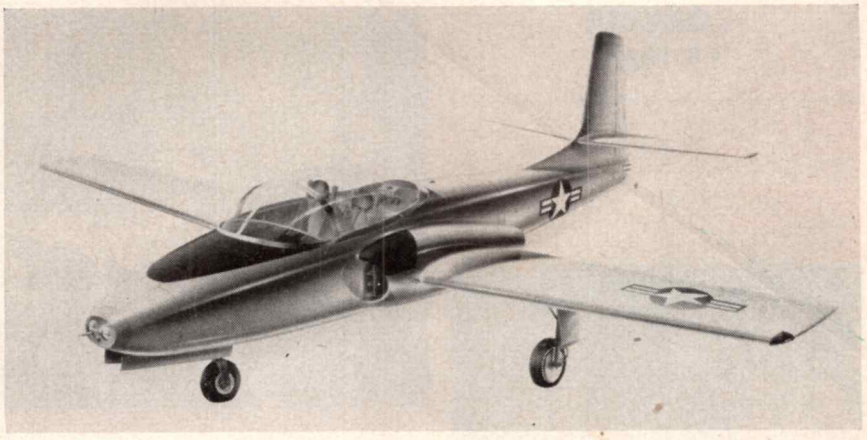
SPECIFICATIONS: Span 141 ft. 3 in.; Length 99 ft.; Height 32 ft. 8 in. Empty weight 80,000 lb.; Gross weight 164,500 lb. normal; Maximum gross weight 173,000 lb. Engine (4) Pratt & Whitney R-4360-35 Wasp Major, 3500 hp takeoff, 2650 hp normal rated; Propellers (4) Curtiss Electric, four-blade, fully reversible, full feathering. Bomb load 20,000 lb. normal, 28,000 lb. with external bombs. Armament 13—.50-cal. machine guns in five turrets.

PERFORMANCE: Maximum speed more than 400 mph, Cruising speed 300 mph. Service ceiling 40,000 ft. Range 4,000 miles with full load, extended by addition of 1400 gal. fuel in external fuel tanks, equipped for in-flight refueling. Deliveries began Nov. 13, 1949 and last of 750 completed Feb. 26, 1953. Photo-reconnaisance versions include E, F and G models. TB-50H is navigator-bombardier trainer version. B-50 comprises backbone of Strategic Air Command.

CESSNA AIRCRAFT CO.

WICHITA, KANSAS

CESSNA XT-37



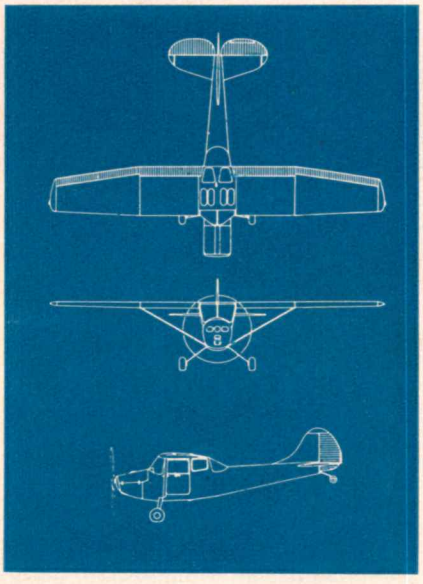
TYPE: Jet trainer

SPECIFICATIONS: Span 33 ft.; Length 27 ft. 1 in.; Height 9 ft. 10 in. Engine (2) Continental Turbomeca Marbore 352 turbojet, 900 lb. static thrust. Design gross weight 5600 lb.

PERFORMANCE: Maximum speed (est.) 400 mph.

REMARKS: Winner of new jet trainer competition over entries of six other manufacturers, new model has received USAF design development contract to be followed by production order at later date. Craft uses French turbojet to be built under license by Continental Engine Corp.

BIRD DOG L-19A



TYPE: Liaison, 2-place

SPECIFICATIONS: Span 36 ft.; Length 25 ft.; Height 7 ft. 6 in.; Empty weight 1448 lb.; Gross weight 2100 lb. (normal), 2200 lb. (overload); Engine Continental 0-470-11, 213 max. hp takeoff; Cessna Safety Spring Gear, which accommodates Goodyear Cross Wind Gear when required; Provisions for Gran Stretcher; McCauley fixed pitch propeller is installed for cruising speed up to 145 mph, Koppers Aeromatic and Hartzell controllable pitch propellers can also be installed; Main gear 8.50x10.

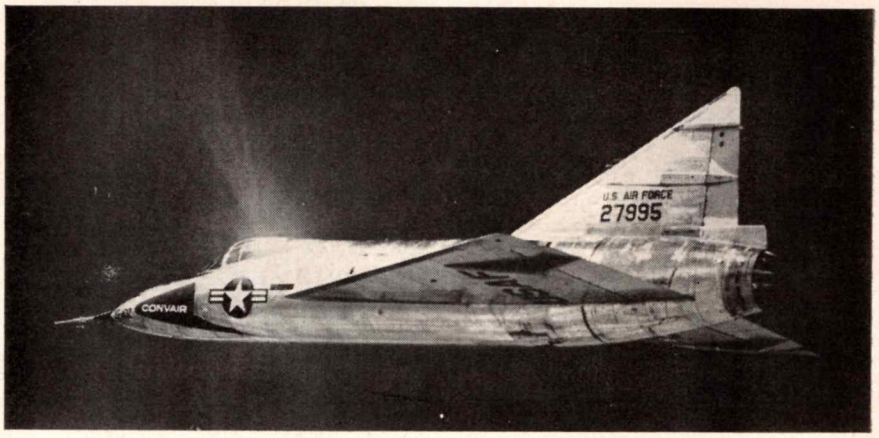
PERFORMANCE: Maximum speed 146 mph at 5,000 ft. Cruise 104 mph; Observation speed 46 mph under full control; Rate-of-climb 1290 fpm; Service ceiling 22,900 ft.; Takeoff over 50-ft. obstacle 560 ft.; Land over 50-ft. obstacle 600 ft.; Endurance at cruising speed with 20 gals. Fuel 3.1 hr.; Range at cruising speed 306 miles. Climb to 5,000 ft. in 4.2 min.

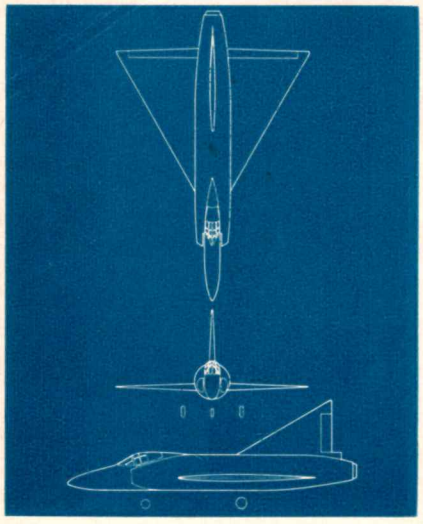
REMARKS: Won liaison plane competition and more than 1,000 have been ordered for use by the Army Field Forces. Navy uses OE-1 version. XL-19B uses Boeing T50 turboprop engine.

CONSOLIDATED VULTEE AIRCRAFT CORP.

SAN DIEGO, CALIFORNIA

CONVAIR YF-102A





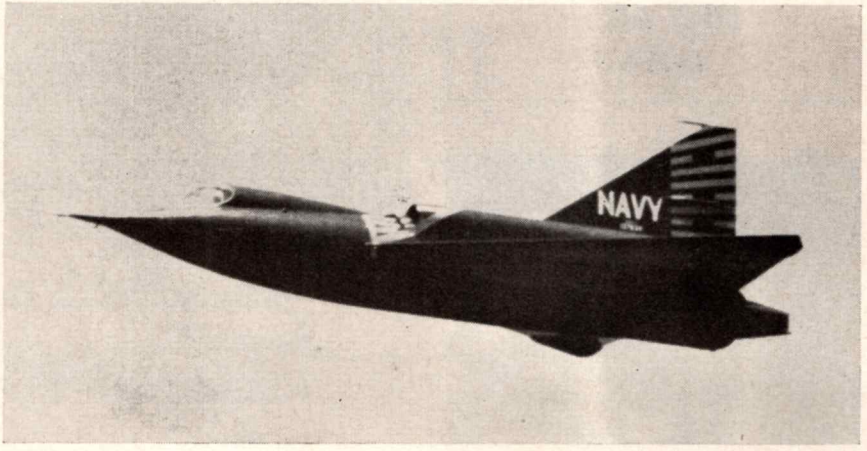
TYPE Interceptor, single-seat

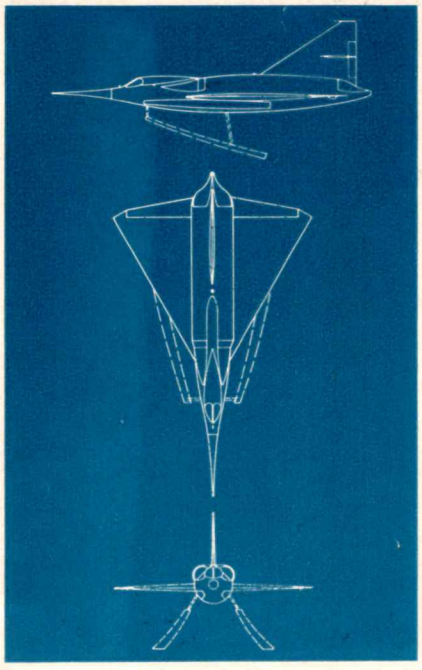
SPECIFICATIONS: Span 32 ft. 9 in.; Length 46 ft. 8 in.; Height 17 ft. 8 in.; Gross weight 25,600 lb.; Engine Pratt & Whitney J57-P-5 A/B, 15,000 lb. thrust.

PERFORMANCE: Maximum speed Mach 1.5; Service ceiling 60,000 ft.; Range 600 miles.

REMARKS: Big, supersonic delta-wing interceptor is designed for either piloted or pilotless flight, uses Hughes guidance equipment and mounts Hughes Falcon missile. Prototype destroyed in crash. First production airplane completed March, 1954.

SEA DART XF2Y-1



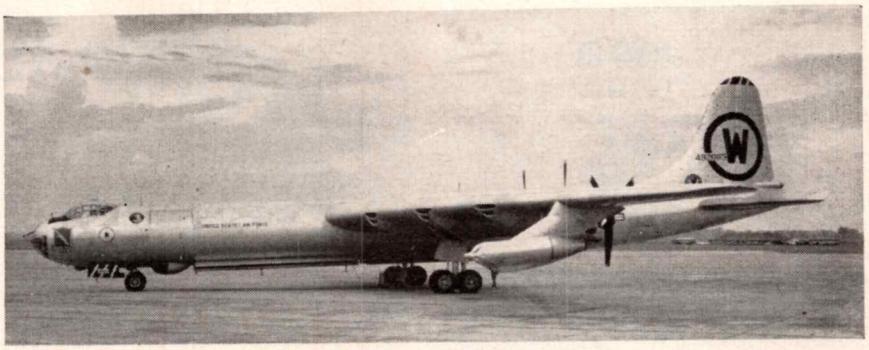


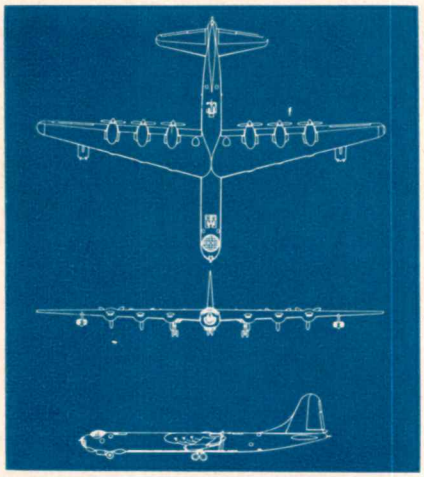
TYPE: Fighter seaplane

SPECIFICATIONS: Span 30 ft. 6 in.; Length 41 ft. 2 in.; Height (skis extended) 21 ft. 1 in. Gross weight 22,000 lb. Engine (2) Westinghouse J34-WE-42, 3400 lb. static thrust.

REMARKS: New flying boat fighter utilizes hydro-ski retractable undercarriage to provide planing surface for water operation. After hydro-ski retraction, resulting airplane is high-speed, delta-wing comparable in performance to landbased fighters. Navy, NACA, Convair, Edo and All-American Airways cooperated in hydro-ski development, included flight tests of Grumman Goose, North American SNJ and Piper airplanes. Initial production quantity now under construction at San Diego factory.

CONVAIR RB-36H





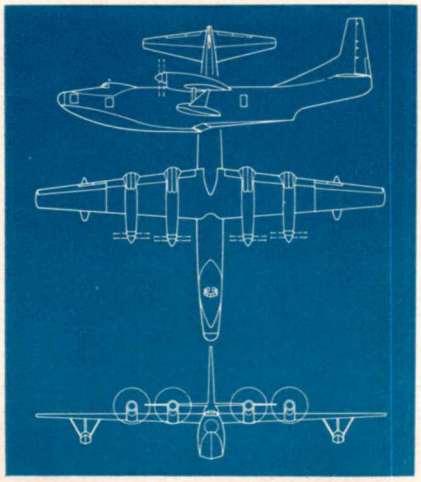
TYPE: Strategic bomber, crew 15

SPECIFICATIONS: Span 230 ft.; Length 162 ft. 1 in.; Height 46 ft. 9 in.; Empty weight 145,000 lb.; Gross weight 326,000 lb.; Maximum gross weight 358,000 lb.; Engine (6) Pratt & Whitney R-4360-53, 3800 hp take-off, (4) General Electric J47 turbo-jet, 5200 lb. thrust; Propeller (6) Curtiss Electric, 3-blade, reversible pitch, 19 ft. dia.; Armament 16-20 mm cannon; Main gear 56 x 16; Nose gear 17 x 20; Fuel 21,116 gal.; Oil 1200 gal.

PERFORMANCE: Maximum speed 436 mph; Service ceiling more than 45,000 ft.; Range 10,000 miles.

REMARKS: World's largest combat aircraft, the B-36 is standard Strategic Air Command heavy bomber, will see service in four bombardment and two reconnaissance groups. All earlier B-36 models have now been converted to B-36D by addition of jet pods and other improvements. RB-36D and RB-36E versions are identical except for substitution of camera equipment for bomb load, including 14 in the forward bomb bay, one with 42-in. focal length lens. Model B-36F features P&W R-4360-50 engines of 3800 hp. ea.

TRADEWIND R3Y-1



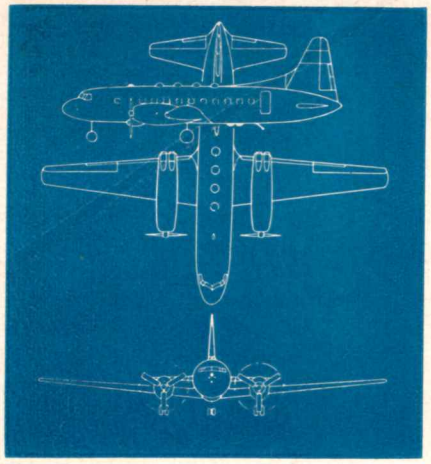
TYPE: Cargo flying boat

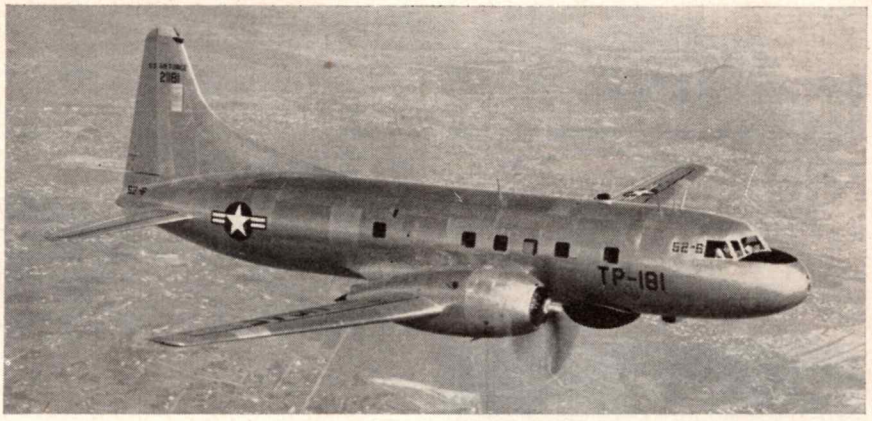
SPECIFICATIONS: Span 145 ft.; Length 142 ft. 6 in.; Height 51 ft. 5 in.; Empty weight 80,000 lb.; Gross weight 150,000 lb.; Engine (4) Allison T40-A-4, 5500 hp at takeoff.

PERFORMANCE: Maximum speed 386 mph @ 25,000 ft.; Cruising speed 300 mph; Rate-of-climb 2500 fpm; Range 4500 mi.

REMARKS: New production version of XP5Y-1 features extensive redesign with completely refaired bow, new high aspect ratio vertical tail, new engine installations, modified float support structure. First U.S. multi-turboprop airplane, the huge flying boat made initial flight April, 1950 and has remained aloft more than eight hours to establish turboprop endurance record. Design features high length-beam ratio hull for low drag in flight, improved water-handling characteristics.

CONVAIR T-29D





TYPE: Trainer, crew 4

SPECIFICATIONS: Span 91 ft. 9 in.; Length 74 ft. 8 in.; Height 26 ft. 11 in.; Area Wing 817 sq. ft.; ailerons 44 sq. ft.; flaps 140 sq. ft.; fin 84.4 sq. ft.; rudder 41 sq. ft.; stabilizer 173.7 sq. ft.; elevator 59 sq. ft.; Empty weight 28,973 lb.; Gross weight 43,575 lb.; Engine (2) Pratt & Whitney R-2800-97, 2400 hp takeoff; Propeller (2) Hamilton Standard 3-blade, full feathering and reversible; Fuel 1500 gal.; Main tires 34 x 9.9; Nose tire 26 x 6; Electrical System 24/28-v d.c.

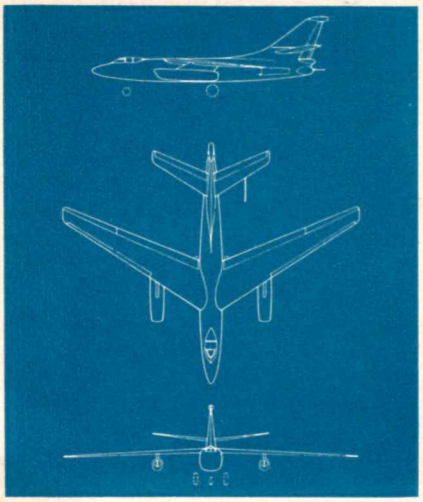
PERFORMANCE: Maximum speed 295 mph at 13,500 ft.; Cruising speed 247 mph at 20,000 ft.; Stalling speed 88 mph; Endurance 6½ hours; Rate-of-climb 1495 fpm; Climb to 20,000 ft. in 17.5 min.; Service ceiling 23,500 ft.; Single-engine ceiling 8850 ft.; Takeoff distance over 50-ft. obstacle 2720 ft.; Landing distance over 50-ft. obstacle 2340 ft.

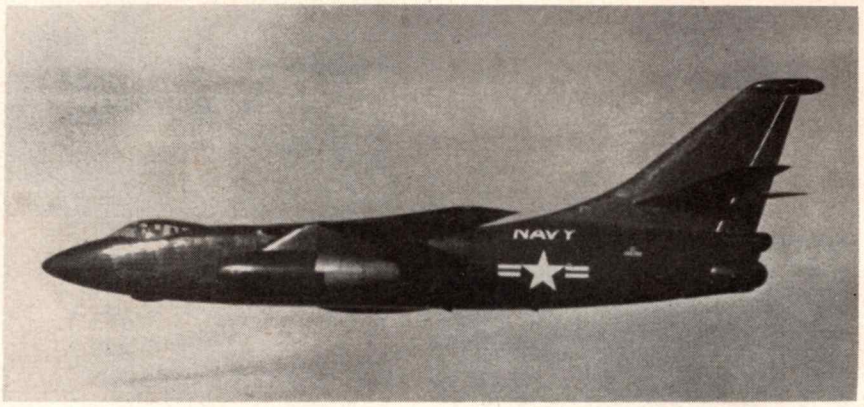
REMARKS: Flying classroom for navigators and bombardiers, the T-29 T-29D is bombardier trainer accommodating seven students and instructors. T-29C is navigation training version equipped with 14 stations, each with table, instrument panel, oxygen, etc. Radar training equipment provides for three students with instructors.

DOUGLAS AIRCRAFT CO. INC.

SANTA MONICA, CALIFORNIA

DOUGLAS A3D-1





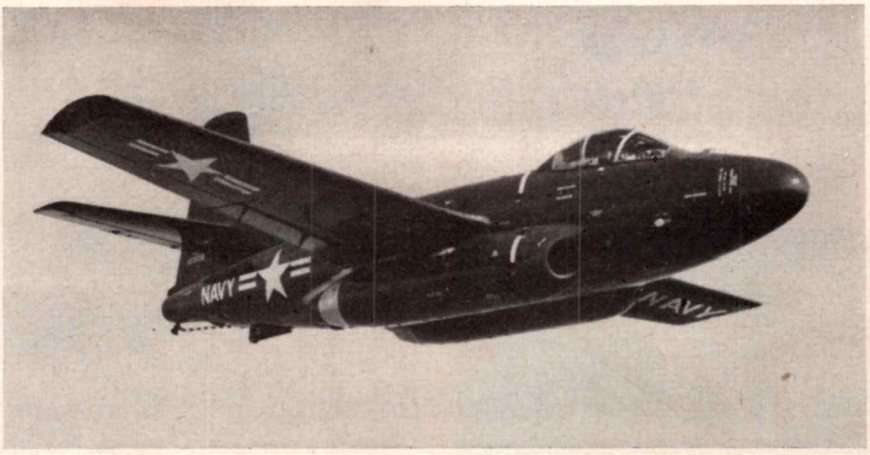
TYPE: Carrier Attack

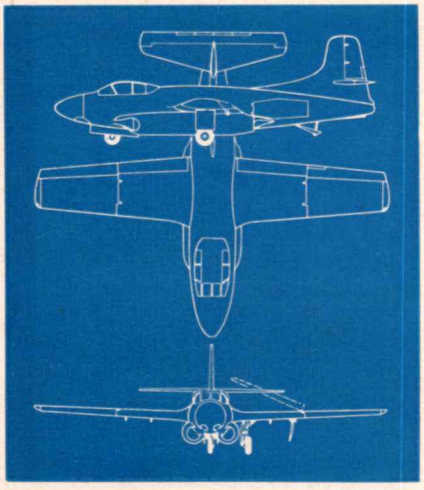
SPECIFICATIONS: Span 95 ft.; Length 76 ft. 6 in.; Height 25 ft. 6 in.; Gross weight 67,000 lb. Engine (2) P&W J57-P-12, 9700 lb. thrust.

PERFORMANCE: Maximum speed more than 650 mph; Ceiling more than 45,000 ft.; Range more than 1500 miles.

REMARKS: Designed expressly for new Forrestal-class super-carriers, Navy A3D has folding wings and fin. First flight Oct. 28, 1952 at Muroc. Production model features enlarged nacelles, revised canopy.
USAF RB-66 version weighs more than 75,000 lb., is powered by two Allison J71-A-3 engines of 9700 lb. thrust ea.

SKYKNIGHT F3D-2



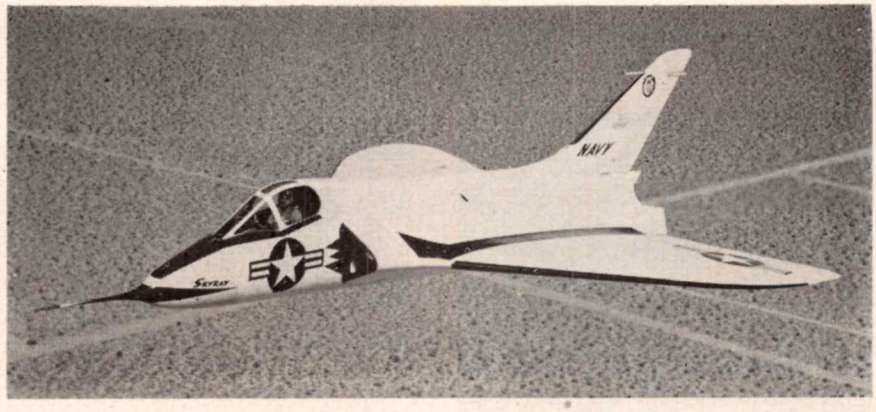


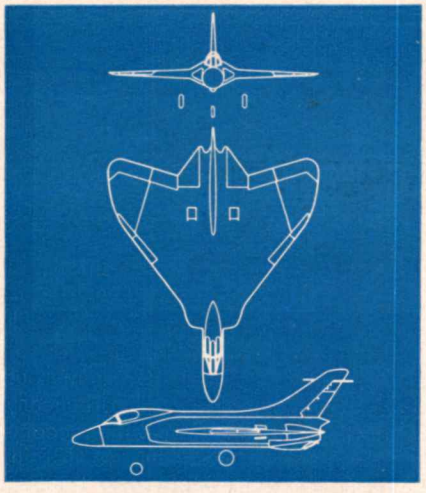
TYPE: All-weather carrier fighter

SPECIFICATIONS: Span 50 ft.; Length 45 ft. 6¼ in.; Height 16 ft. 6 in.; Empty weight 15,000 lb.; Gross weight 24,650 lb.; Engine (2) Westinghouse J34-WE-38, 3500 lb. static thrust.

REMARKS: Two-seat all-weather fighter, the **Skynight** is the first such design intended for carrier operation. Search radar is mounted in the nose and four 20mm cannon are carried. Auxiliary fuel tanks are provided but on its internal fuel alone the F3D is the longest ranging fighter in Navy service. A special system of lighting for the cockpit prevents glare and all readings are indicated by edge-lighted Lucite. Crew escape is through a special chute beneath the cockpit. Large air brakes are located along the aft fuselage to slow the plane's diving speed. Equipment includes tail warning radar, intercept and gun laying radar. Carries rockets. Entered Korean night conflict in Nov., 1952 with MiG victory.

SKYRAY F4D-1





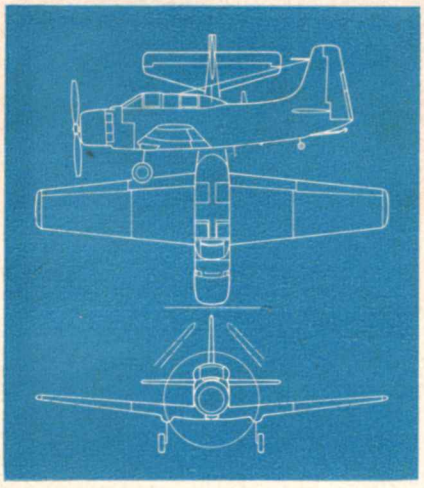
TYPE: Carrier interceptor

SPECIFICATIONS: Span 27 ft. 6 in.; Length 37 ft. 7 in.; Height 12 ft. 10 in.; Gross weight about 16,000 lb. Engine Westinghouse J40-WE-10 turbojet providing 7500 lb. static thrust, 10,800 lb. with after-burning.

PERFORMANCE: Supersonic speed with 15-18,000 fpm rate-of-climb. Endurance limited to 45 min. Can reach 50,000 ft. in less than 10 min.

REMARKS: First Navy interceptor, the delta-wing XF4D is designed specifically for catapulting from carrier deck and climbing rapidly to 50,000 ft. to intercept enemy aircraft at sea. Prototype made first flight Jan. 23, 1951 at Edwards Air Force Base, Calif. with Douglas test pilot Larry Peyton at the controls. Set World Speed Record of 753.4 mph Oct. 3, 1953 with LCDR James Verdin at controls. Quantity production now under way at El Segundo, Calif. using P&W J57 engine.

SKYRAIDER AD-5



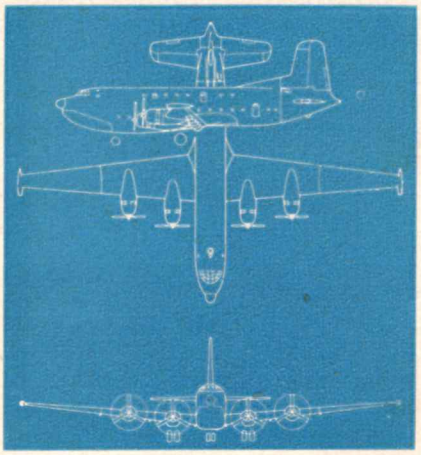
TYPE: Multi-purpose.

SPECIFICATIONS: Span 50 ft.; Length 39 ft. 8 in.; Height 13 ft. 10 in.; Engine Wright R-3350-26W, 2700 hp at 2900 rpm at takeoff; Empty weight 11,800 lb.; Gross weight 18,000 lb.; Armament four 20mm cannon plus external load varying with mission.

PERFORMANCE: Maximum speed 365 mph; Cruising speed 300 mph; Combat radius 500 miles.

REMARKS: Basic airframe is quickly convertible into 12 different operational types: attack fighter, attack bomber, passenger transport, air ambulance with litters, troop carrier, cargo transport , anti-submarine hunter-killer, early warning radar, target tug, photo reconnaissance, torpedo and rocket assault.

GLOBEMASTER II C-124C



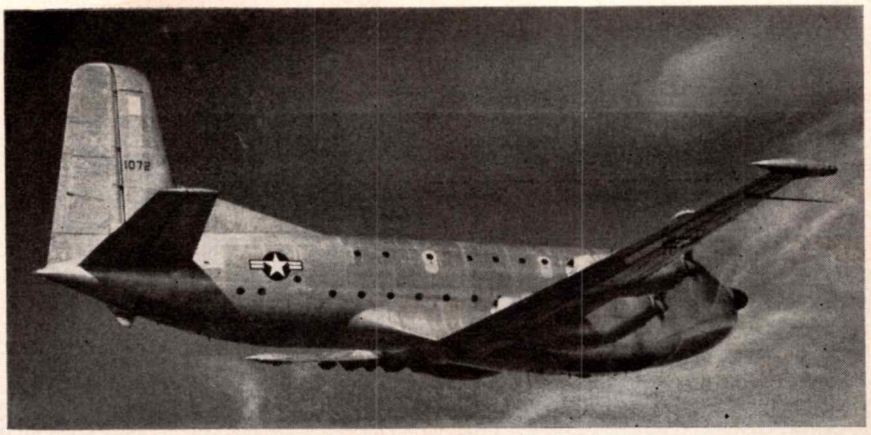
TYPE: Strategic cargo

SPECIFICATIONS. Span 174 ft.; Length 130 ft.; Height 48 ft. 3 1/2 in.; Wing area 2506 sq. ft.; Empty weight 101,340 lb.; Gross weight 185,000 lb. normal; Maximum gross weight 195,000 lb.; Engine (4) Pratt & Whitnew R-4360-63, 3800 hp at 2700 rpm for takeoff water injection, 3250 hp at 2700 rpm at takeoff dry; Propellers (4) Curtiss Electric three-blade high activity, 16 ft. 7 in., reversible-pitch; Main tire 25.00 x 28; Nose tire 15.50 x 20; Electrical system 24-28-v d.c.; Fuel 11,100 gal.

PERFORMANCE: Maximum 298 mph at 20,800 ft.; Cruising speed 264 mph at 13,600 ft.; Stalling speed 99.5 mph with 160,000 lb. gross; Rate-of-climb 800 fpm; Service ceiling full gross 22,050 ft.; Range 6280 miles.

REMARKS: Largest heavy cargo and troop transport in production today, the huge Globemaster II was developed from the C-74 by addition of bulge under fuselage, numerous minor refinements. A hydraulically operated nose loading ramp accommodates cargo items up to 130-in. wide and 140-in. high; rear loading door handles items 89 in. wide, 85 in. high and 155 in. long. As a troop carrier, the giant craft can carry up to 200 troops or 123 litter patients. Production for Strategic Air Command.

GLOBEMASTER II
YC-124B



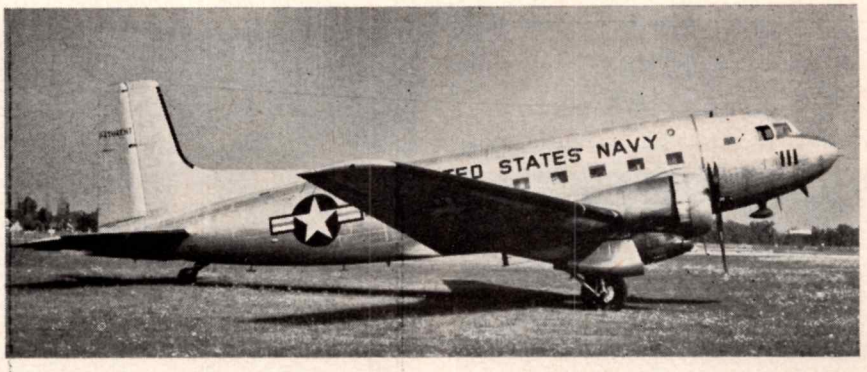
TYPE: Strategic cargo

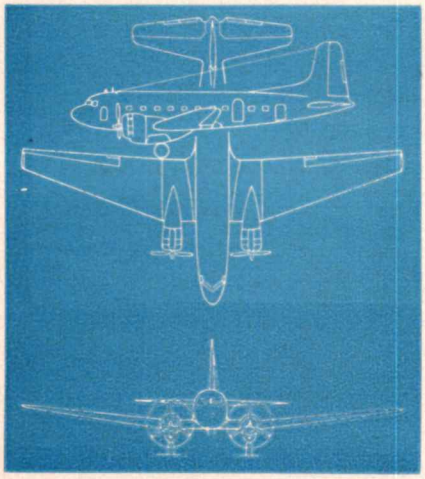
SPECIFICATIONS: Span 174 ft. 1 in., Length 129 ft. 7 in.; Height 51 ft. 3 in.; Wing area 2506 sq. ft.; Empty weight 96,269 lb.; Gross weight 200,000 lb.; Engine (4) Pratt & Whitney YT34-P-1 turboprop, 5500 hp at takeoff.

PERFORMANCE: Maximum speed 348 mph @ 30,000 ft.; Cruising speed 308 mph @ 22,500 ft.; Stalling speed 98 mph.; Rate-of-climb 1100 fpm; Service ceiling full gross 30,000 ft.; Range 4500 mi.

REMARKS: Basic Globemaster, new craft is development project to provide direct comparison of piston and turboprop cargo operation. New transport includes enlarged and strengthened vertical tail and redesigned horizontal tail with new airfoil. Cabin pressureization is added for crew comfort due to increased cruising altitude needed for efficient turboprop operation. Pneumatic system provides engine starting, pressurization and auxiliary power.

DOUGLAS
R4D-8





TYPE: 31-passenger

SPECIFICATIONS: Span 90 ft.; Length 67 ft. 8½ in.; Height 18 ft. 3 in.; Area wing 967 sq. ft.; Ailerons 71.7 sq. ft.; Flaps 92.5 sq. ft.; Fin 53.9 sq. ft.; Rudder 36.8 sq. ft.; Stabilizer 158.5 sq. ft.; Elevator 95 sq. ft.; Empty weight 19,500 lb.; Gross weight 31,000 lb.; Maximum gross weight 36,800 lb.; Engine (2) Wright R-1820-80, 1525 hp at 2800 rpm at takeoff, 890 hp at 2400 rpm cruise power; Propeller (2) Hamilton Standard constant-speed; Fuel 1604 gal.; Main tire 17.00 x 16; Nose tire 9.00 x 6; Electrical system 24-28-v d.c.

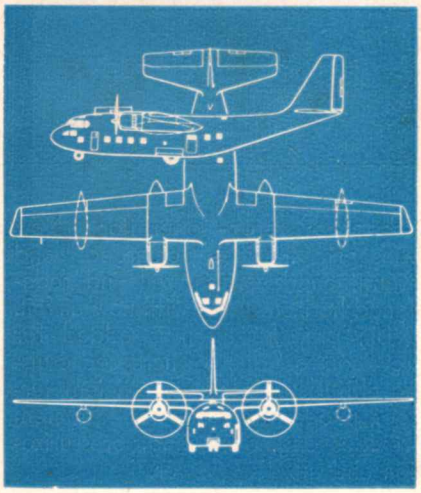
PERFORMANCE: Maximum speed 270 mph at 5800 ft.; 255 mph at sea level; Cruising speed 251 mph at 5800 ft.; Rate-of-climb 990 fpm; Service ceiling 24,700 ft.; Range 4690 miles; Takeoff over 50-ft. obstacle 2510 ft.; Land over 50-ft. obstacle 2490; Landing speed 77 mph.

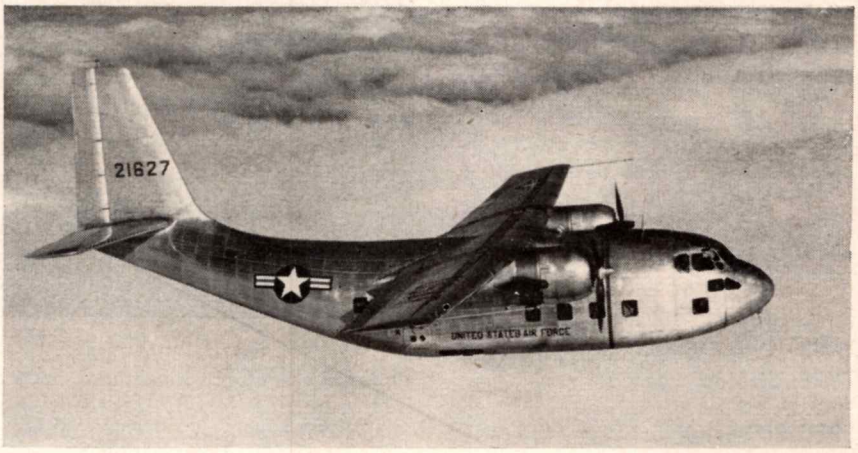
REMARKS: The Super DC-3, as its name implies, is a modified version the modifications being so arranged that existing DC-3's may be reworked into Super DC-3's with a minimum of time and money. Douglas has received a Navy contract to convert 100 R4D transports into the new R4D-8 version.

FAIRCHILD AIRCRAFT

HAGERSTOWN, MD.

FAIRCHILD C-123B





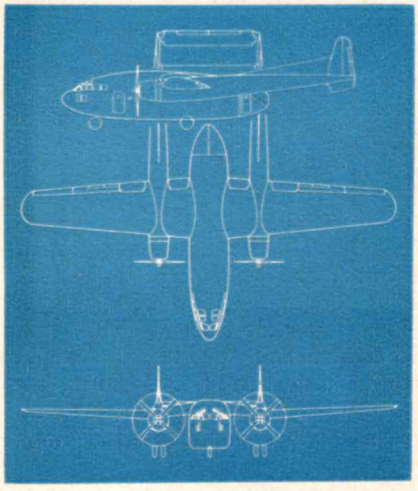
TYPE: Transport, crew 2

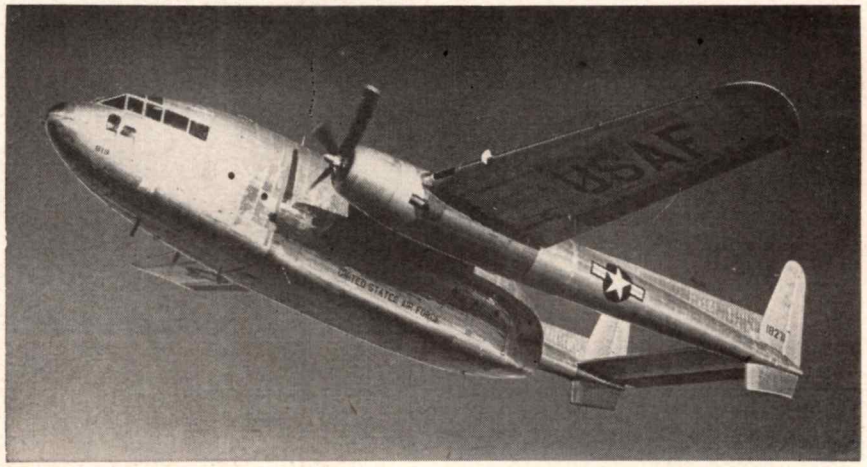
SPECIFICATIONS: Span 110 ft.; Length 77 ft. 1 in.; Height 32 ft. 8 in.; Empty weight 29,906 lb.; Gross weight 54,000 lb.; Maximum gross weight 71,000 lb.; Engine (2) Pratt & Whitney R-2800-52W, 2400 hp at 2800 rpm takeoff, 1900 hp at 2600 rpm normal rated; Area Wing 1223.22 sq. ft.; ailerons 83.28 sq. ft.; flaps 128 sq. ft.; stabilizer 204 sq. ft.; fin 131.75 sq. ft.; elevator 105.2 sq. ft., rudder 64.75 sq. ft.; Cargo space 36 ft. 8 in. long, 9 ft. 2 in. wide, 8 ft. 2 in. high, volume 3570 cu. ft.; Main tires 17:00 x 20; Nose tire 11.00 x 12; Propeller (2) Hamilton Standard 3-blade, constant speed, full-feathering, reversible 15 ft. dia.; Electrical system 24-v d.c.

PERFORMANCE: Maximum speed 255 mph; Cruising speed 215 mph; Landing speed 85 mph; Stalling speed 75 mph; Rate-of-climb 1150 fpm; Service ceiling 25,000 ft.; Take-off over 50-ft. obstacle 1180 ft.; Land over 50-ft. obstacle 930 ft.; Range maximum fuel 4700 miles; normal fuel 2200 miles.

REMARKS: Designed specifically as cargo plane, craft can accommodate 60 fully-equipped troops, 50 litter patients, 8 tons of cargo, bulky equipment or weapons, tow a glider weighing up to 30,000 lb. or be towed in emergency.

PACKET C-119G





TYPE: Troop and cargo, crew 5

SPECIFICATIONS: Span 109 ft. 3 in.; Length 86 ft. 6 in.; Height 26 ft. 3 in.; Empty weight 39,751 lb.; Gross weight 64,000 lb. normal; Maximum gross weight 72,800 lb. Engine (2) Wright R-3350-32W 3500 hp takeoff, 2650 hp normal rated; Fuel 2624 gal.; Main gear 15.50 x 20, nose gear 44 in.; Electrical system 24-volt d.c.; Cargo 3150 cu. ft.

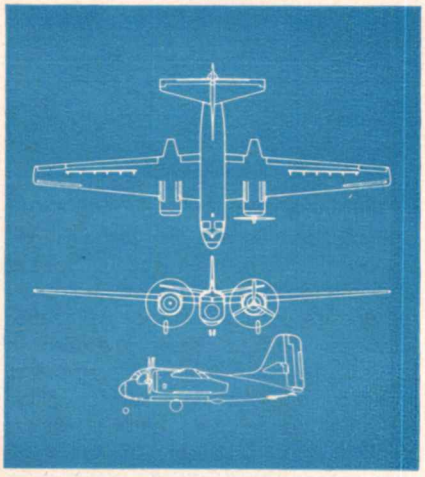
PERFORMANCE: Maximum speed 296 mph at 17,000 ft., 258 mph at sea level; Cruising speed 175 mph; Rate-of-climb 800 fpm; Stall 110 mph with flaps; Combat radius 1152 miles; Maximum range 3480 miles with 6850 lb. cargo.

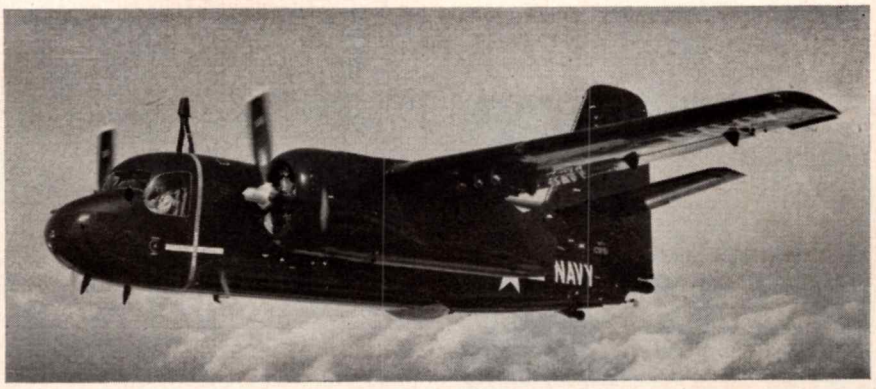
REMARKS: Packet is also used by U. S. Marine Corps as R4Q-1. Developed from wartime C-82A, the C-119B differs by use of P&W Wasp Major engines. Versatility is available in box-car fuselage, equipped with electrically-operated monorail for rapid aerial delivery of cargo packs, light artillery, jeeps, 42 paratroops. In 20 min. cabin can be converted to carry 38 litter patients with four attendants. C-119G mounts Aeroproducts A-644 propellers.

GRUMMAN AIRCRAFT ENGINEERING CORP.

BETHPAGE, L. I., NEW YORK

SENTINEL
S2F-1

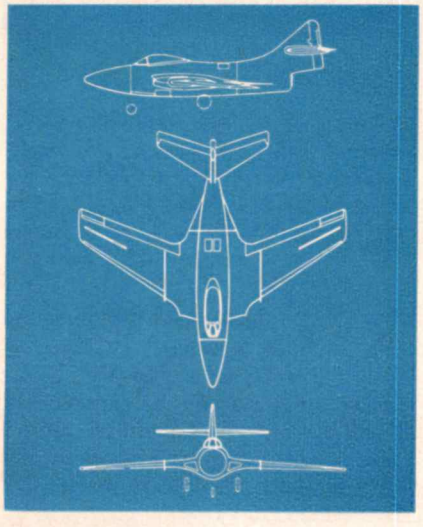


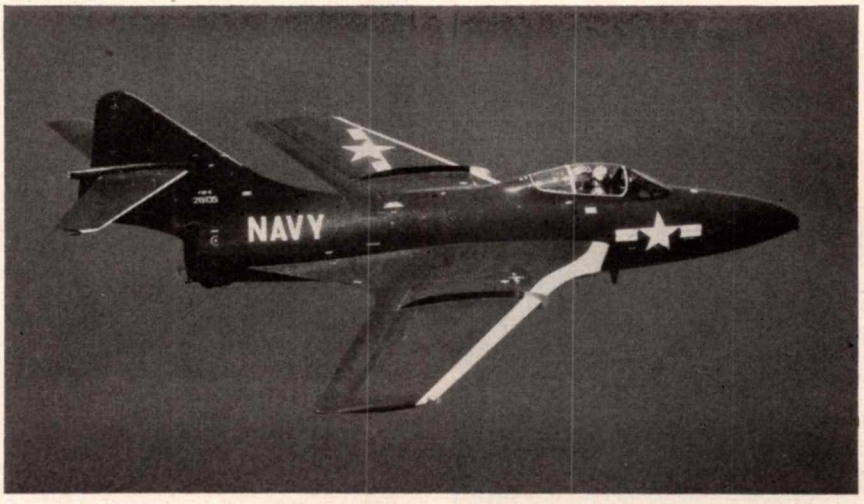


TYPE: Anti-submarine

REMARKS: New twin-engined craft is designed to integrate both hunter and killer functions of AF-2 single-engine anti-submarine warfare types. No data have been released other than fact that new XS2F-1 is powered by two Wright R-1820-76 engines of 1425 hp for takeoff. As with the AF-2S and AF-2W Guardian models, speed and high performance have been exchanged for endurance to permit hours of sea patrol seeking the enemy schnorkel. Full combat version will mount huge search radar dome, carry torpedoes, depth charges, mines, sonobuoys, and cannon.

COUGAR
F9F-6





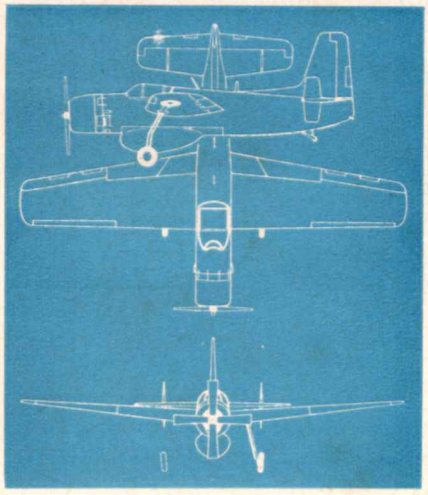
TYPE: Carrier Fighter

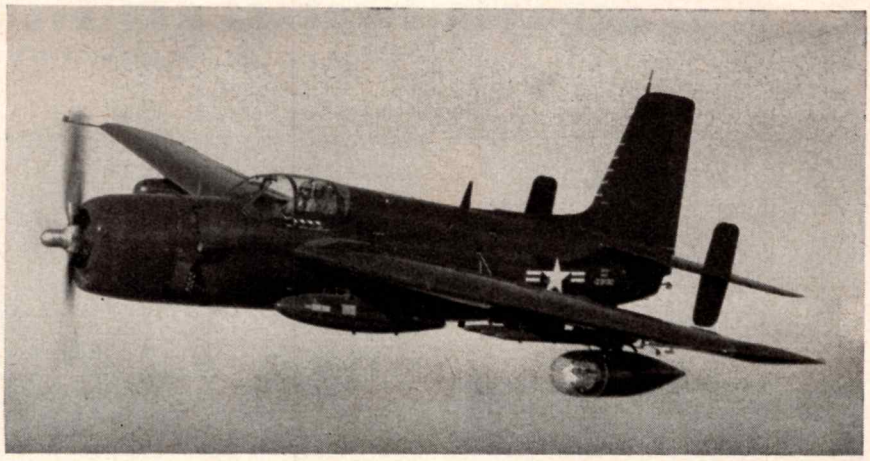
SPECIFICATIONS: Span 36 ft. 5 in.; Length 41 ft. 7 in.; Height 15 ft. Gross weight more than 20,000 lb. Engine Pratt & Whitney J48-P-8, 7000 lb. static thrust dry at 11,000 rpm at sea level.

PERFORMANCE: Maximum speed 700 mph; Service ceiling 50,000 ft.; Rate-of-climb 40,000 ft. in 7 min.; Range more than 1000 miles.

REMARKS: Swept-wing version of famed F9F carrier fighter, new model has been in quantity production more than a year, replacing straight-wing versions on the line. F9F-7 model is identical except powered by Allison J33-A-16A of same 7000 lb. thrust.

GUARDIAN AF-2





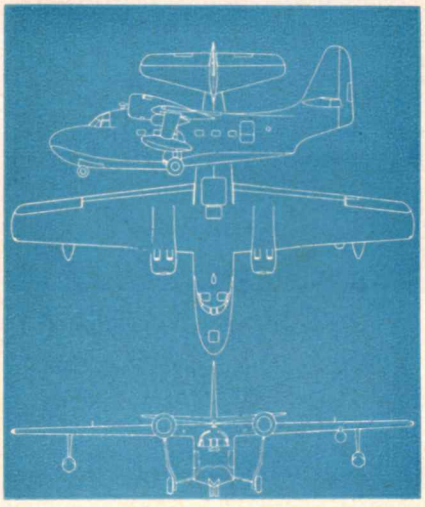
TYPE: Anti-Submarine Warfare, two-place.

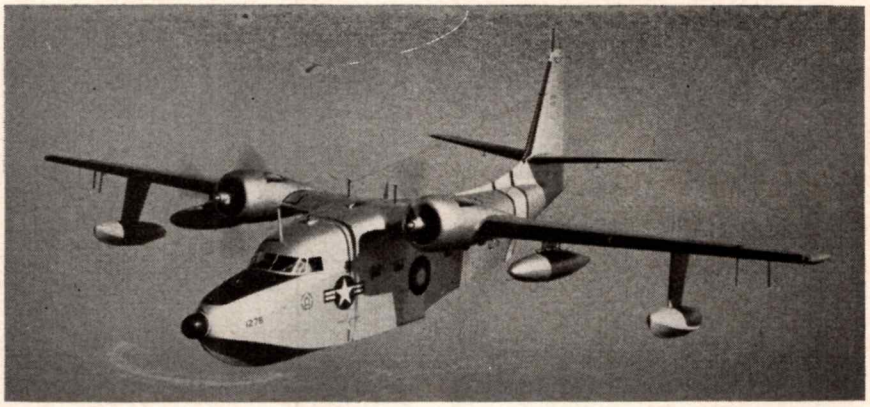
SPECIFICATIONS: Span 60 ft.; Length 43 ft. 4 in.; Height 16 ft. 2 in.; Empty weight 14,580 lb.; Gross weight 25,000 lb. Engine Pratt & Whitney R-2800-48W Double Wasp, 2400 hp for takeoff, 2100 hp normal rated.

PERFORMANCE: Maximum speed 317 mph; Service ceiling 32,200 ft.; Combat radius 1500 miles.

REMARKS: Two versions in production, the AF-2W search model equipped with huge search radar equipment, in "Guppy" mounting below fuselage, and AF-2S attack version equipped with special anti-submarine equipment including depth charges, bombs, etc. AF-2W and AF-2S form hunter-killer team. Special design emphasis on slow-flying characteristics, long endurance for search missions. Second crew member in search version is radar operator located in fuselage behind pilot. Originally developed during war as XTBF-1 with jet engine in tail, type was ordered first in 1947. Production completed 1953.

ALBATROSS SA-16A





TYPE: Air-sea Rescue, crew 6

SPECIFICATIONS: Span 80 ft.; Length 62 ft. 2 in.; Height 24 ft. 4 in. Empty weight 24,000 lb.; Gross weight 34,000 lb. Engine (2) Wright R-1820-76A, 1425 hp at 2700 rpm takeoff, 975 hp at 2500 rpm normal rated at 14,700 ft.; Propeller (2) Hamilton Standard 43D50 three-blade, reversible pitch, 11 ft. dia.; Fuel normal 675 gal., external fuel 600 gal., total 1275 gal.; oil 58 gal. Electrical System 24-volt; Control Surfaces fabric covered.

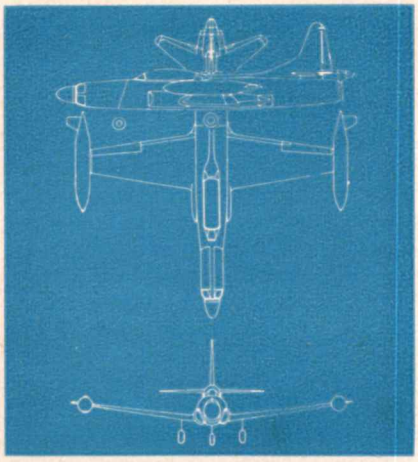
PERFORMANCE: Maximum speed 270 mph at 18,800 ft.; 245 mph at sea level; Stalling speed 79 mph; Rate-of-climb 1400 fpm; Takeoff distance in 30 mph wind 330 ft.; Takeoff time in calm water 17 sec.; Range 2700 miles; Endurance 22.9 hours.

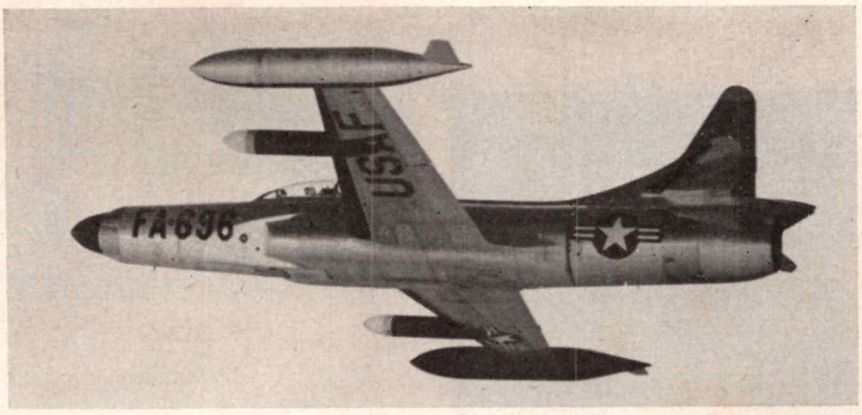
REMARKS: Developed by Navy as XJR2F-1, it is now used by Navy as UF-1 utility transport, by MATS Air Rescue Service as air-sea rescue craft. Tri-phibious version features retractable keel skid for operation on ice. Now on duty throughout world.

LOCKHEED AIRCRAFT CORP.

BURBANK, CALIFORNIA

STARFIRE F-94C





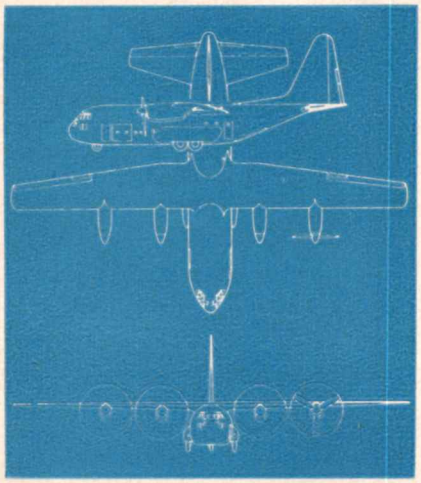
TYPE: All-weather Fighter, crew 2

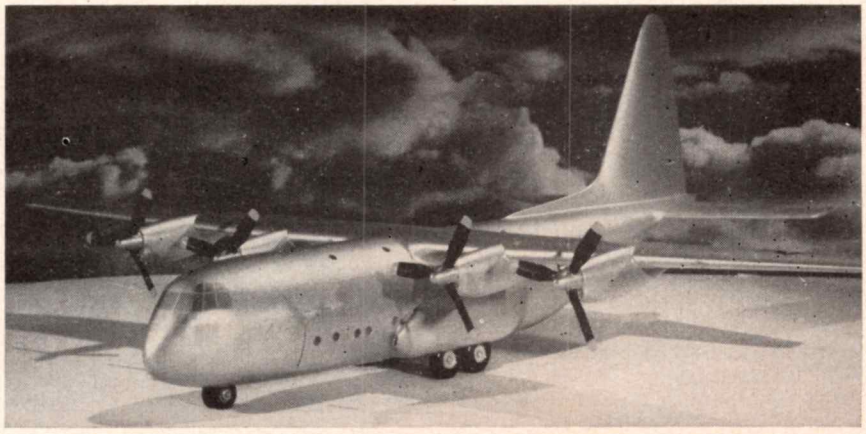
SPECIFICATIONS: Span 38 ft. 10½ in.; Length 41 ft. 5½ in.; Height 12 ft. 7 in.; Empty weight 9557 lb; Gross weight 27,000 lb. Engine Pratt & Whitney J48-P-5, 8000 lb. at 11,000 rpm at sea level, 9000 lb. W/A. Fuel capacity including tip tanks 648 gal. Armament four .50-cal. machine guns in nose.

PERFORMANCE: Maximum speed 607 mph; Rate-of-climb 9250 fpm; Service ceiling 48,500 ft.; Takeoff 3720 ft. Combat radius more than 500 miles.

REMARKS: New all-weather fighter is developed from previous F-94B and A models, the latter recently introduced into Korean night combat with victories over the MiG-15. New F-94C models features thinner wing, swept tail for near-sonic performance. Carrying no guns, new fighter mounts 24 2.75-in. rockets in barrel launcher in nose plus 24 more in special wing pods. Wing uses special Lockheed machine-tapered and ribbed skin plating. Production completed February, 1954.

LOCKHEED YC-130





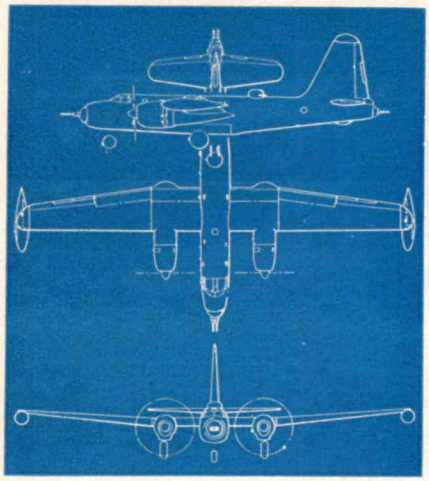
TYPE: Cargo

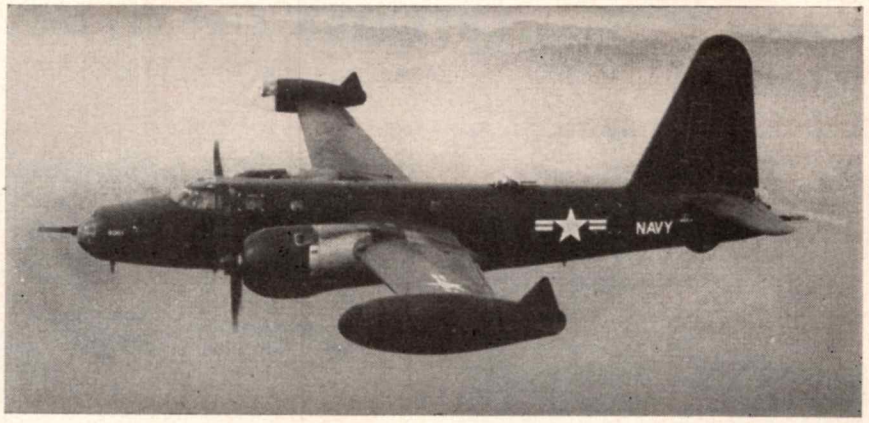
SPECIFICATIONS: Span 132 ft.; Length 95 ft.; Height 38 ft. Gross weight about 130,000 lb.; Engine (4) Allison T56-A-1 turboprop, 3750 hp. Curtiss Turboelectric 3-blade propellers.

PERFORMANCE: Maximum speed more than 400 mph; Cruising speed about 350 mph at high altitude. Range about 3,000 miles.

REMARKS: First U. S. airplane designed expressly for turboprop power, the YC-130 is an assault cargo transport especially designed for short, rough field operation. The lower aft fuselage comprises a loading ramp up which a 155mm howitzer or equivalent concentrated load can be driven. The cabin floor is only 45 in. from the ground to permit truck-bed loading through the forward doors.

NEPTUNE P2V-6





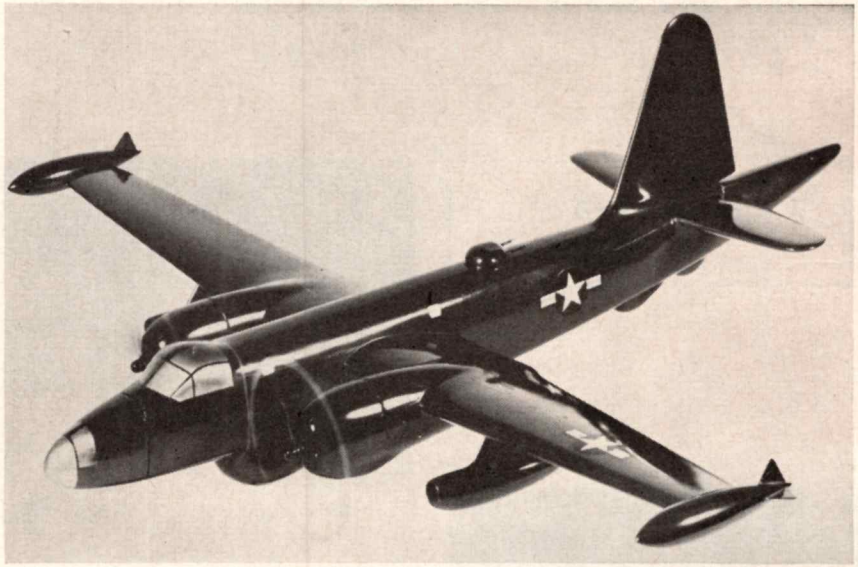
TYPE: Search, crew 7

SPECIFICATIONS: Span 104 ft.; Length 78 ft. 3 in.; Height 28 ft. 1 in.; Empty weight 39,900 lb.; Gross weight 72,000 lb. Engine (2) Wright R-3350-30W Turbo-Cyclone, 3250 hp at 2900 rpm at takeoff, rated 2650 hp at 2600 rpm at 6500 ft.; Fuel capacity 4210 gal. including tip tanks; Propeller (2) Hamilton Standard 14 ft. 2 in.

PERFORMANCE: Maximum speed 352 mph at 9500 ft.; Rate-of-climb 2620 fpm; Service ceiling 26,100 ft.; Range 4200 miles; Takeoff over 50-ft. obstacle 4050 ft.; Land over 50-ft. obstacle 3070 ft.

REMARKS: **Neptune** holds world's distance record of 11,236 miles. Model P2V-5, mounts "guppy" search radar housing under fuselage plus cannon, rockets and depth charges for anti-submarine warfare. Model P2V-G is special mine-laying version with stainless steel naceiles, pressure fueling equipment. In Feb., 1950 Neptune established world's distance record for carrier-launched aircraft of 5156 miles from U.S.S. Franklin D. Roosevelt off Jacksonville, Fla. to San Francisco, Calif. by way of the Panama Canal.

NEPTUNE P2V-7



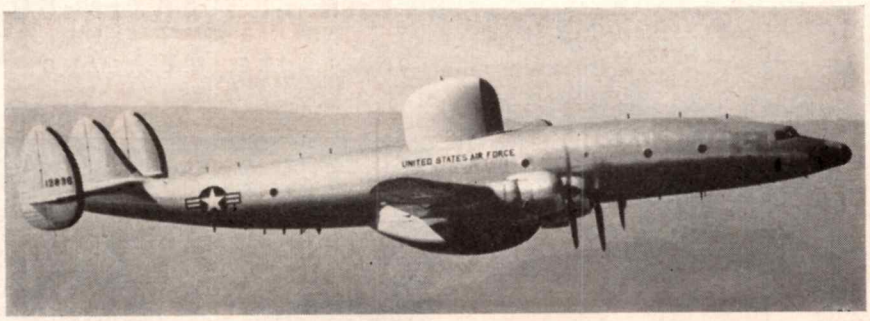
TYPE: ASW, crew 7

SPECIFICATIONS: Span 103 ft. 10 in.; Length 89 ft. 6 in.; Height 28 ft. 1 in.; Empty weight 38,120 lb.; Gross weight 69,000 lb.; Engine (2) Wright R-3350-30W Turbo Compound, 3250 hp @ 2900 rpm @ takeoff, rated 2650 hp @ 2600 rpm @ 6500 ft. plus (2) Westinghouse J34-WE-34 (or equivalent), 3800 lb. static thrust; Fuel capacity 3910 gal. gasoline, 300 gal. jet fuel in tip tanks; Propeller (2) Hamilton Standard 14 ft. 2 in.

PERFORMANCE: Maximum speed all engines 421 mph; piston engines only 344 mph; Rate-of-climb all engines 3100 fpm; Service ceiling all engines 31,000 ft.; Range 3700 mi.; Takeoff over 50-ft. obstacle 3420 ft.; Land over 50-ft. obstacle 2970 ft.

REMARKS: New P2V-7 is advanced anti-submarine warfare model featuring auxiliary turbojet engines in wing pods. New model features substantial weight saving, new canopy, new gear retraction system, extensive interior arrangement improvements. Giant stinger in tail houses magnetometer, shnorkel-detecting equipment..

LOCKHEED RC-121C

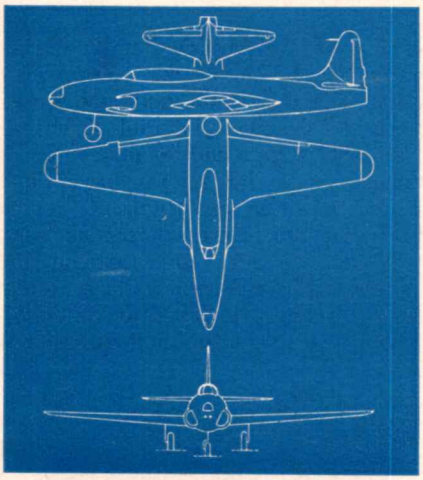


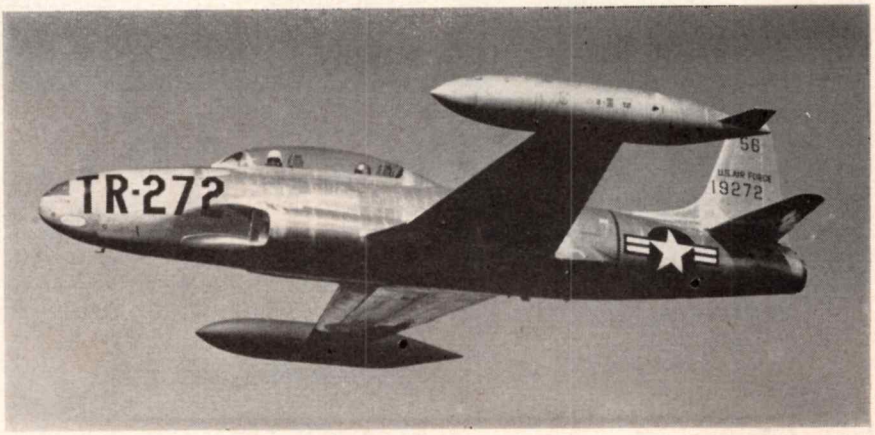
TYPE: Radar picket

SPECIFICATIONS: Span 126 ft.; Length 116 ft. 2 in.; Height 30 ft. Engine (4) Wright R-3350-34, 3250 hp at 2900 rpm for takeoff. Gross weight 120,000 lb.

REMARKS: Special version of Super Constellation, WV-2 maintains station at high altiture above fleet to detect enemy aircraft far beyond horizon range of surface radar. Warnings are radioed to fleet carriers below for fighter intercept coverage. WV-2 is Navy version.

LOCKHEED T-33A





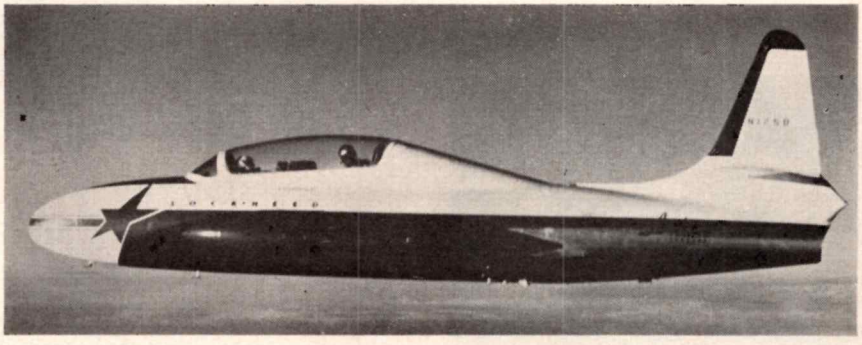
TYPE: Trainer, crew 2

SPECIFICATIONS: Span 38 ft. 10½ in.; Length 37 ft. 8½ in.; Height 11 ft. 8½ in.; Empty weight 8400 lb.; Gross weight 15,000 lb. Engine Allison J33-A-5, 5200 lb. at 11,750 rpm at sea level. Fuel capacity 683 gals. including tiptanks.

PERFORMANCE: Maximum speed 580 mph; Rate-of-climb 5525 fpm; Service ceiling 45,000 ft.; Range 1345 miles; Takeoff over 50-ft. obstacle 2750 ft.; Land over 50-ft. obstacle 3050 ft.

REMARKS: Remarkably successful, the T-33A has been in continuous production for six years, is now in service in Turkey, France, Greece, Canada, Belgium, Holland, Yugoslavia and Italy. It is in production by Lockheed and by Canadair, Ltd. U.S. Navy uses TV-2 version. Trainer is based on F-80C fighter, first U.S. combat jet fighter.

LOCKHEED T-33B



TYPE: Trainer

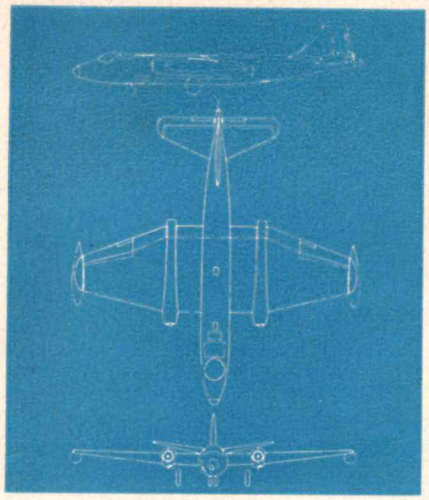
SPECIFICATIONS: Span 42 ft.; Length 38 ft.; Height 13 ft.; Engine Allison J33-A-16A, 5200 lb. thrust; Two 230-gal. tip tanks.

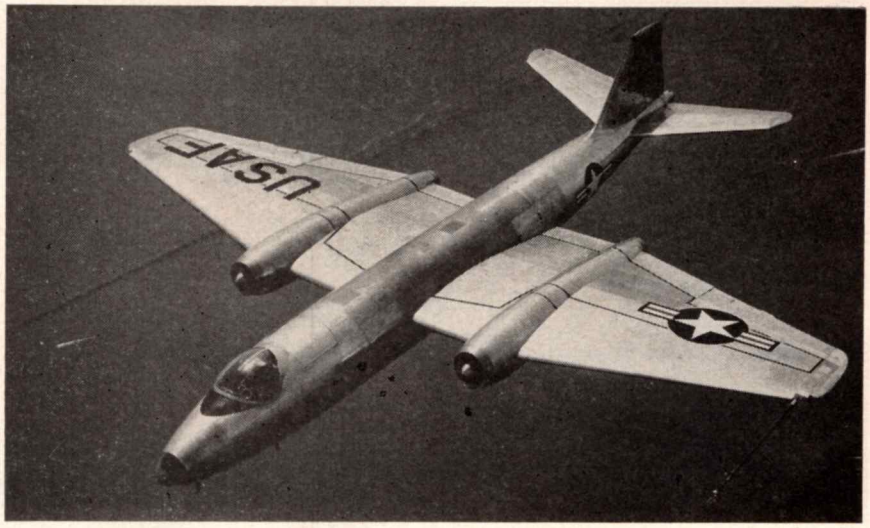
REMARKS: Advanced version of famed T-33, new trainer incorporates greatly improved handling characteristics, including nose slats, raised and enlarged stabilizer, landing tail parachute, duplicate navigational and electronic equipment. Instructor sits in raised seat for forward visibility. Equipment includes computer, glide path receiver and VOR receiver, Zero Reader flight communication radio. Prototype made first flight Dec. 15, 1953 and has completed 60-day service test program including tour of USAF and Navy training bases. Fully-developed T-33 tooling permits production of the new trainer at lowest possible cost for its type.

GLENN L. MARTIN CO.

BALTIMORE, MARYLAND

NIGHT INTRUDER B-57A





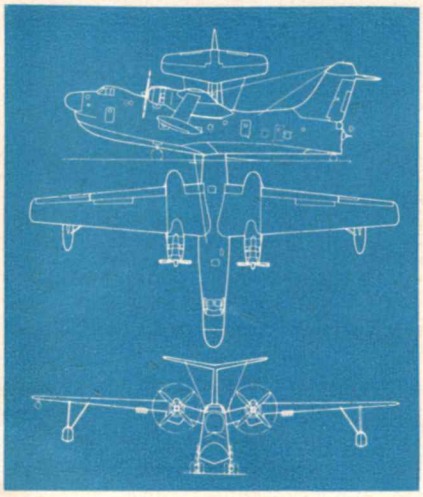
TYPE: Night intruder

SPECIFICATIONS: Span 64 ft.; Length 65 ft. 6 in.; Height 15 ft. 7 in.; Empty weight 26,000 lb.; Gross weight 46,000 lb.; Wing area 960 sq. ft.; Aspect ratio 4.27; Engine (2) Wright J65-W-1, 7220 lb. static thrust.

PERFORMANCE: Maximum speed 600 mph; Service ceiling 45,000 ft.; Range 3000 miles.

REMARKS: Although a licensed-built version of the English Electric Canberra, the B-57A is a wholly new airplane internally with completely redesigned structure, internal arrangement and equipment to meet USAF requirements. B-57A has night intruder role for radar-guided bombardment but advanced versions feature tandem crew arrangement in fighter, photo-reconnaissance and ground support missions. In quantity production at Martin Baltimore plant.

MARLIN P5M-2



TYPE: Search, crew 7

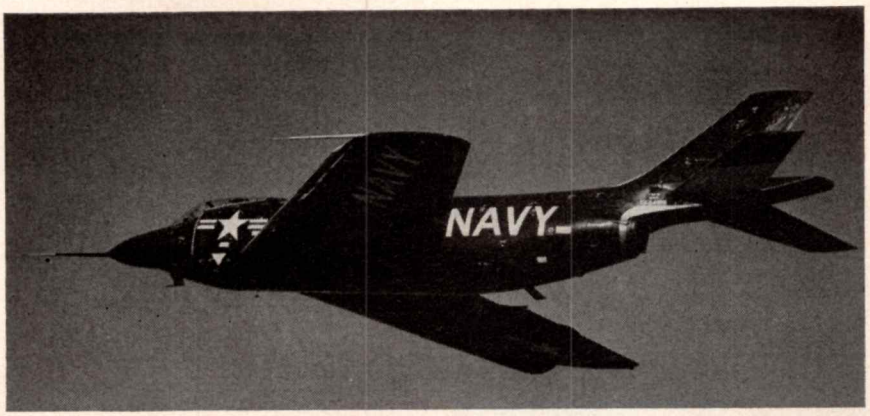
SPECIFICATIONS: Span 118 ft., 2½ in.; Length 100 ft., 7¼ in.; Height 32 ft. 8½ in.; Engine (2) Wright R-3350-30 Turbo-Cyclone; Propeller Hamilton Standard 34E60 reversible; Gross weight more than 70,000 lb.

REMARKS: Developed from wartime PBM flying boat, the P5M features a long afterbody designed to improve takeoff characteristics and reduce bouncing and instability during landing. To assist water maneuvering, a pair of hydraflaps are mounted on aft hull and act as water rudders. The big flying boat is heavily equipped with radar and special devices for the detection of submarines as well as with depth charges and bombs for their destruction. The **Marlin** is extremely long-ranged and will be able to remain aloft on patrol for more than 24 hours. Model P5M-2 is Coast Guard rescue version with "T" tail.

McDONNELL AIRCRAFT CORP.

ST. LOUIS, MISSOURI

DEMON
F3H-1N



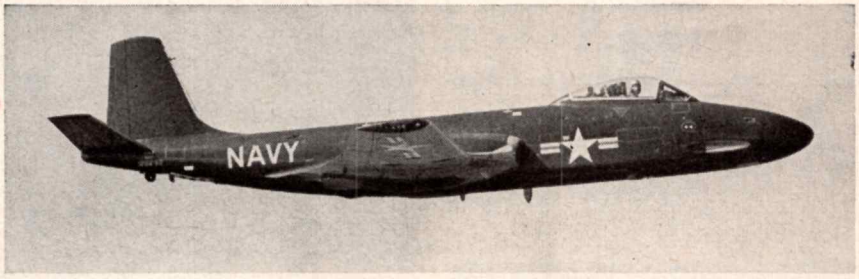
TYPE: Carrier fighter

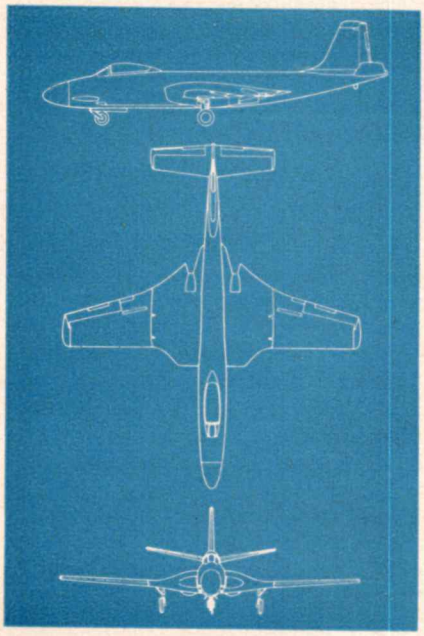
SPECIFICATIONS: Span 35 ft. 4 in.; Length 58 ft. 4 in.; Height 13 ft. 11 in.; Gross weight 23,400 lb.; Engine Westinghouse J40-WE-8, 7500 lb. static thrust, 13,800 lb. thrust with afterburning.

PERFORMANCE: Maximum speed 778 mph; Ceiling 45,000 ft.; Range 2,000 mi.; Rate-of-climb 12,000 fpm.

REMARKS: All-weather fighter-bomber, the new craft mounts six 20mm cannon plus external load of rockets and bombs. F3H-2 production model will use Allison J71 engine of 9200 lb. thrust static and 15,000 lb. thrust with afterburning. F3H-3 has J73-GE-3. Controls full power operated with "solid" stabilizer and power-operated leading edge slats and trailing edge slotted flaps. Prototype made first flight Aug. 7, 1951 at Lambert-St.Louis Municipal Airport and has undergone intensive development, including carrier qualification trials aboard the **U.S.S. Soral Sea.** In quantity production at McDonnell St. Louis plant.

BANSHEE
F2H-4





TYPE: Carrier Fighter, single-seat

SPECIFICATIONS: Span 44 ft. 11 in.; Length 47 ft. 6 in.; Height 14 ft. 5½ in. Engine (2) Westinghouse J34-WE-34, 3250 lb. thrust; Fuel capacity with tip tanks more than 1,000 gal.; Wings fold to 18 ft. span for carrier elevator stowage; Gross weight more than 19,000 lb.

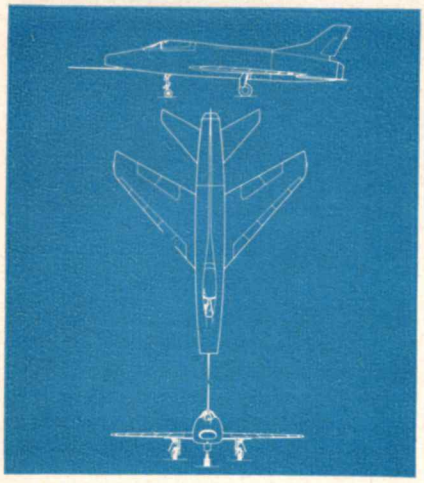
PERFORMANCE: Maximum speed over 600 mph; Cruising speed more than 500 mph; Rate-of-climb better than 9000 fpm; Service ceiling above 50,000 ft.; Normal range over 2000 miles with tip tanks.

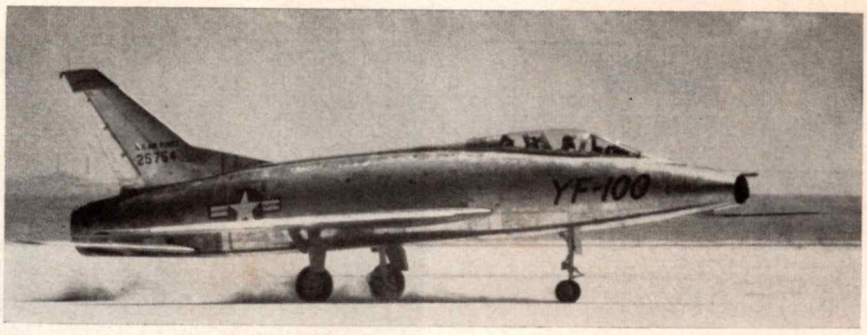
REMARKS: Lengthened fuselage section houses additional internal fuel for long range. Earlier F2H-2N featured extended radar nose; F2H-2P mounted cameras in extended nose. Now out of production, last Banshee fighter was completed Oct. 30, 1953.

NORTH AMERICAN AVIATION, INC.

LOS ANGELES, CALIFORNIA

SUPER SABRE
F-100A





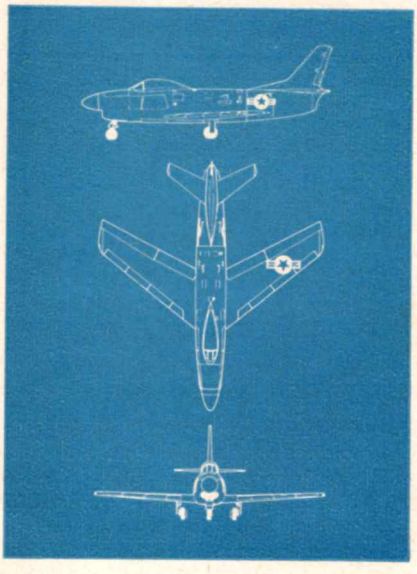
TYPE: Interceptor

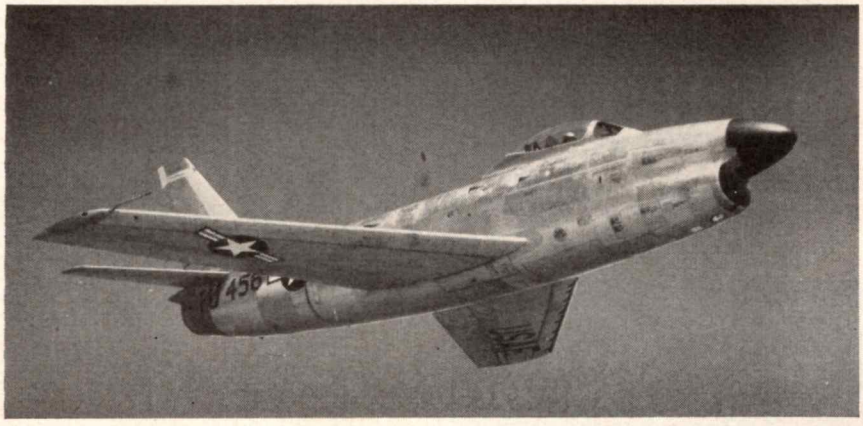
SPECIFICATIONS: Span 36 ft.; Length 45 ft.; Height 14 ft.; Gross weight 22,000 lb.; Engine Pratt & Whitney J57-P-7, 10,000 lb. static thrust.

PERFORMANCE: Maximum speed M 1.3 (860 mph) at 45,000 ft.; Maximum speed at sea level World's Speed Record 755.149 mph established Oct. 29, 1953; Service ceiling more than 50,000 ft.; Combat radius more than 600 mi.

REMARKS: Successor to famed F-86 Sabre, new fighter is first production airplane in the world to fly regularly at supersonic speed in level flight. It features 45-deg. swept wing, uses tail braking parachute, "solid" stabilizer, large ventral air brake. Now in vast quantity production, it is next standard USAF fighter-interceptor.

SABRE
F-86D





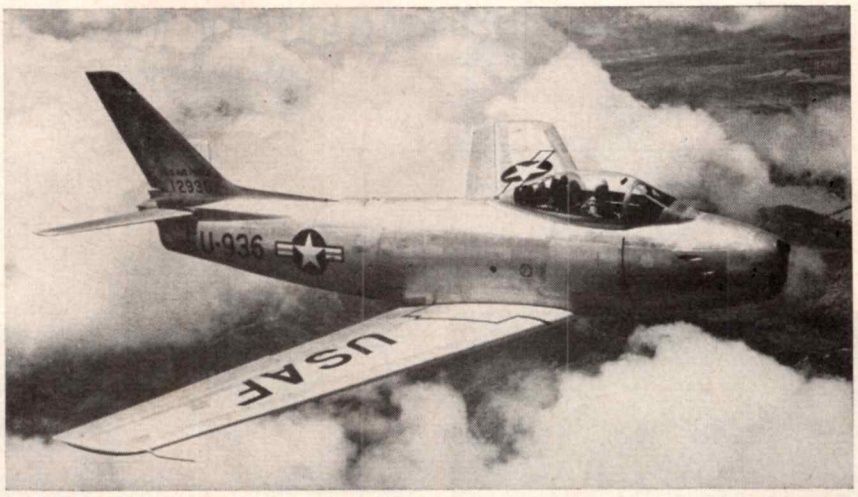
TYPE: All-weather interceptor.

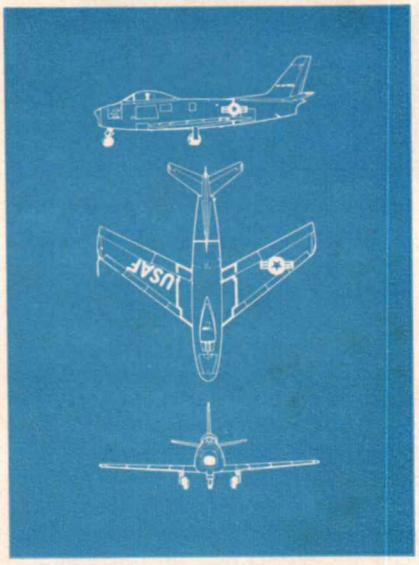
SPECIFICATIONS: Span 37 ft. 1 in.; Length 41 ft. 8 in.; Height 15 ft. Gross weight 18,000 lb. Engine General Electric J47-GE-17 with afterburner, 5200 lb. thrust normal, more than 8000 lb. with afterburner.

PERFORMANCE: Maximum speed 715 mph; Service ceiling over 45,000 ft. Tactical radius over 500 miles. Service ceiling over 45,000 ft. Tactical radius over 500 miles.

REMARKS: Developed from F-86A Sabre, the new model features a search radar antenna in the nose and special electronic equipment for all-weather operation. Afterburner-equipped General Electric J47 engine provides substantial performance increase over MiG-Killing F-86A. Engine is electronically controlled through a series of sensors, which detect changes in variety of conditions and translate them into power changes. Carries 24 "Mighty Mouse" 2.75 in. rockets. Equipment includes Sperry "Zero Reader" unit.

SABRE
F-86F



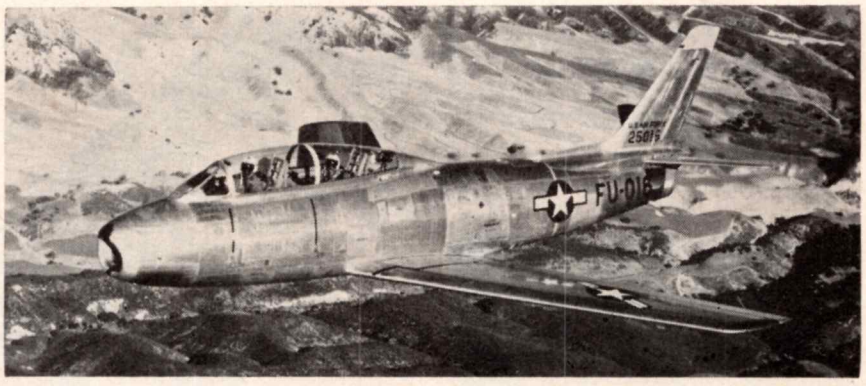


TYPE: Fighter-bomber, single-seat

SPECIFICATIONS: Span 37 ft. 1 1/2 in.; Length 37 ft. 6 1/2 in.; Height 14 ft. 9 in.; Gross weight 16,000 lb.; Engine General Electric J47-GE-27, 5800 lb. static thrust; Landing gear tread 100 in.; Wheel Bendix 26-in. cast magnesium; Brake Bendix rotor-disc hydraulic; Landing gear strut Cleveland air-oil; Nose gear hydraulically retractable and steerable.
PERFORMANCE: Maximum speed 680 mph; Tactical radius over 500 miles; Service ceiling over 45,000 ft.

REMARKS: World's fastest operational airplane, the F-86 went into action in Korea in December, 1950. The F-86F, current production model, features an "all flying" tail in which elevator and stabilizer are controllable by the pilot. Irreversible control system for elevator-stabilizer and ailerons produces zero stick forces in maneuvers, requires artificial feel system to permit pilot control. F-86H model powered by General Electric J73 engine of 9200 lb. thrust.

TRAINER
TF-86F

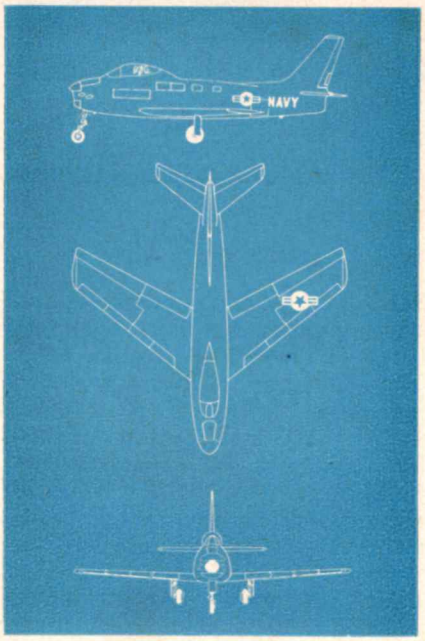


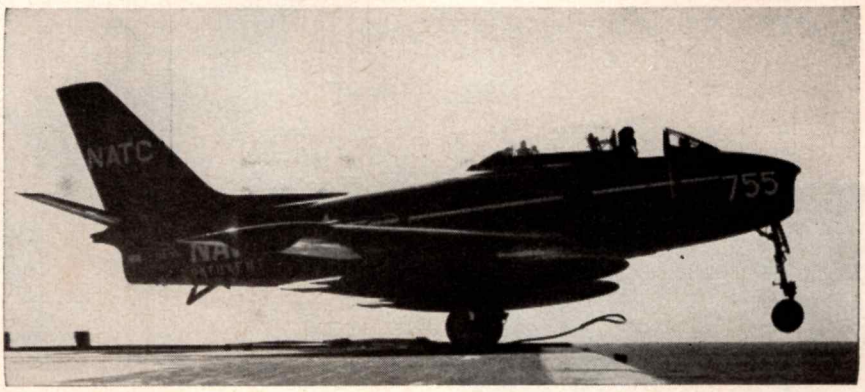
TYPE: Trainer
SPECIFICATIONS: Span 37 ft.; Length 42 ft.; Height 14 ft.; Gross weight 17,000 lb.; Engine General Electric J47-GE-27, 5800 lb. static thrust; Armament two 0.50-cal. machine guns; Two 200-gal. drop tanks plus two 120-gal. aux. tanks.
PERFORMANCE: Maximum speed more than 650 mph at sea level; Service ceiling more than 45,000 ft.; Combat radius more than 600 miles.
REMARKS: World's fastest training plane, new machine was created by five-foot fuselage extension to famed F-86F Sabre fighter. Training version adds intercom system, omni-range receiver, instrument landing system receiver and direction finding equipment to fighter systems. Only two .50-cal. machine guns are used for gunnery training. New trainer can be used for pilot training in highspeed flying, gunnery and dive bombing. Prototype made first flight Dec. 14, 1953.

NORTH AMERICAN AVIATION, INC.

COLUMBUS, OHIO

FURY II
FJ-2





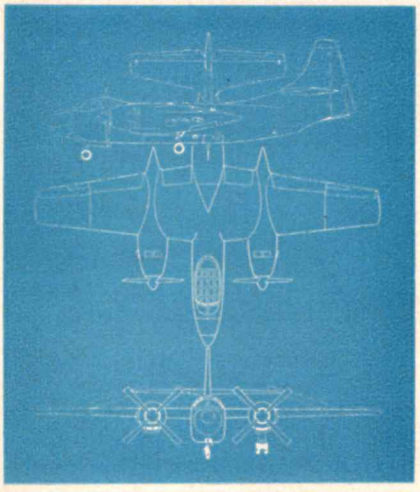
TYPE: Carrier fighter

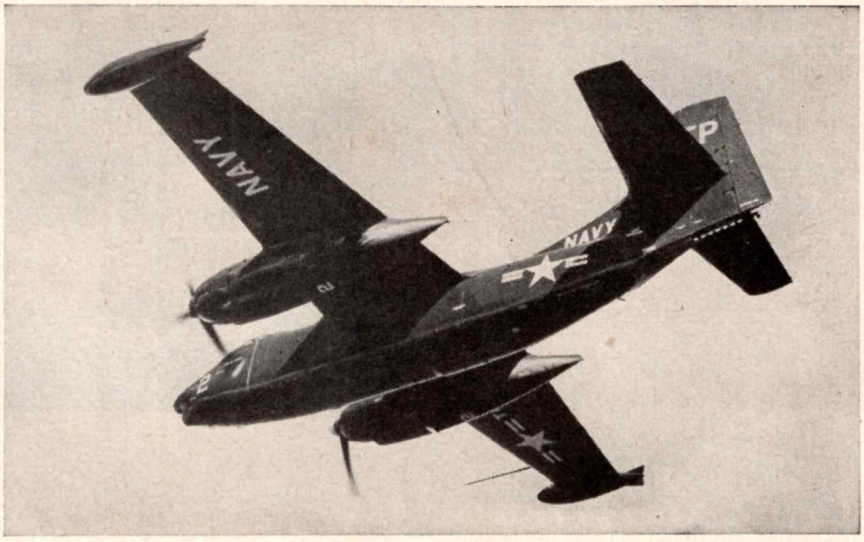
SPECIFICATIONS: Span 37 ft. 1½ in.; Length 37 ft. 6½ in.; Height 14 Gross weight 18,000 lb. Engine General Electric J47-GF-2, 5800 lb. thrust.

PERFORMANCE: Maximum speed 680 mph; Rate-of-climb 9000 fpm; Service ceiling 45,000 ft.; Tactical radius 200 miles.

REMARKS: Carrier version of famed **Sabre,** new Navy version features 500 lb. of added empty weight to accommodate changes for carrier operation including wing folding equipment, strengthened landing gear and wing center section, deck arresting gear. In production at Columbus, Ohio plant for general carrier fighter missions. New model FJ-3 will be powered by Wright J65-W-3 engine of 7220 lb. thrust, is now in production.

SAVAGE
AJ-2P





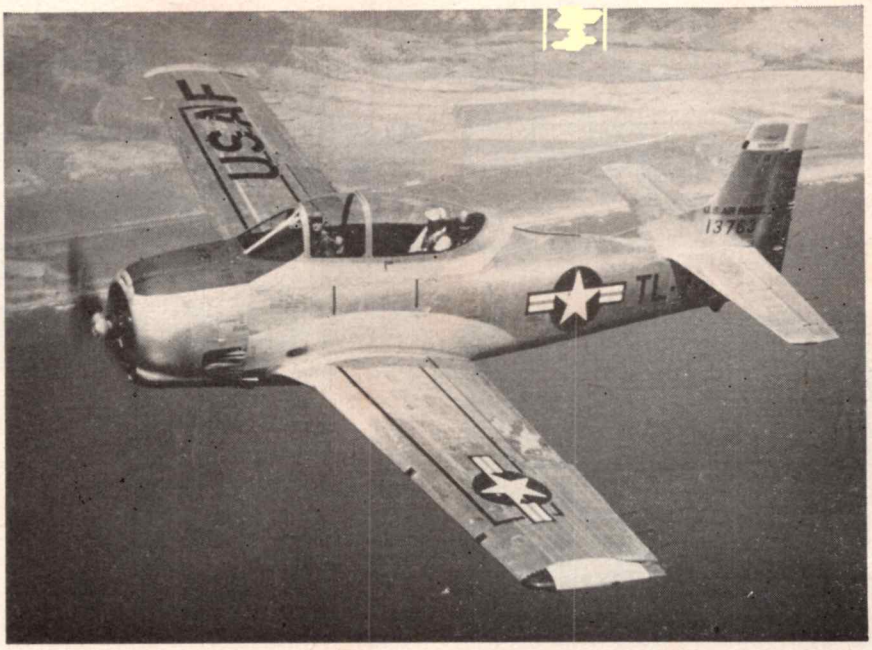
TYPE: Bomber, crew 3

SPECIFICATIONS: Span 71 ft. 5 in. Length 65 ft.; Height 20 ft.; Empty weight 28,000 lb.; Gross weight 55,000 lb.; Engine (2) Pratt & Whitney R-2800-48W **Double Wasp,** 2400 hp takeoff plus one Allison J33-A-10, 4600 lb. thrust; Propeller (2) Hamilton Standard.

PERFORMANCE: Maximum speed 425 mph. on all engines, 300 mph on piston engines alone; Cruising speed 250 mph on piston engines; Service ceiling more than 40,000 ft.; Range in excess of 3000 miles on added fuel.

REMARKS: Capable of carrying the atom bomb from carrier deck, the AJ is the heaviest airplane ever to see carrier service. Jet engine, located in lower rear fuselage, is used only for takeoff and highspeed over the target. Air inlet is flush with deck. AJ-2P version, in production at Columbus, Ohio plant, carries 18 cameras, special electronic gear.

T-28A



TYPE: Trainer, 2-seat

SPECIFICATIONS: Span 40 ft. 7 in.; Length 32 ft. 1/2 in.; Height 12 ft. 8 in.; Area wing 268 sq. ft.; Engine Wright R-1300-1, 800 hp takeoff, 700 hp normal rated; Propeller Aeroproducts two-blade, constant speed, 19 ft. 1/2 in. dia.; Fuel capacity 125 gal.; Empty weight 5780 lb.; Normal gross weight 7339 lb.; Maximum gross weight 7808 lb.

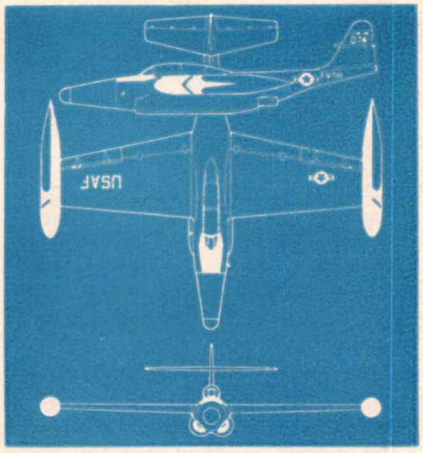
PERFORMANCE: Maximum speed 288 mph at 5900 ft.; Cruising speed 190 mph; Stalling speed 72 mph; Rate-of-climb 2060 fpm; Service ceiling 25,600 ft.; Takeoff 722 ft.; Takeoff over 50-ft. obstacle 1310 ft.; Range 1008 miles.

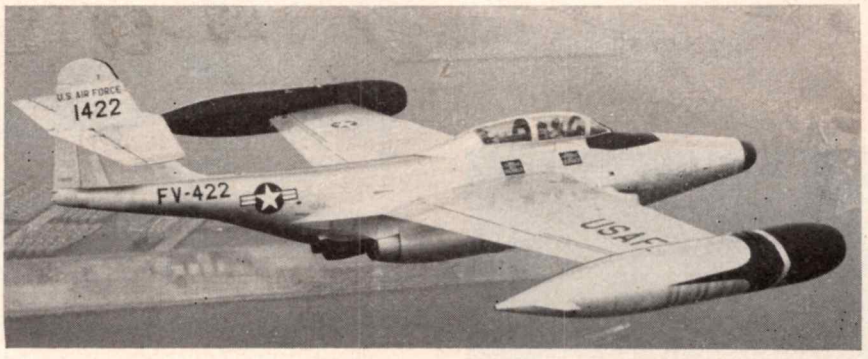
REMARKS: Winner of Air Force trainer competition, the T-28 replaces the previous primary, basic and advanced type trainers and combines these separate stages into a single airplane. First tricycle gear trainer in the Air Force, the T-28 includes electro-hydraulic boost control for the nosewheel. Access port behind engine permits easy servicing. Armament, gun sight, radio and other gear are easily installed or removed for various training missions. T-28B with Wright R-1820 giving 343 mph maximum speed and 8013 lb. gross weight is in production for Navy.

NORTHROP AIRCRAFT, INC.

HAWTHORNE, CALIFORNIA

SCORPION F-89D





TYPE: All-weather Fighter, crew 2

SPECIFICATIONS: Span 56 ft. 2 in.; Length 53 ft. 4 1/2 in.; Height 17 ft. 7 in.; Gross weight more than 40,000 lb. Engine (2) Allison J35-A-21 with afterburner; Armament six 20 mm cannon.

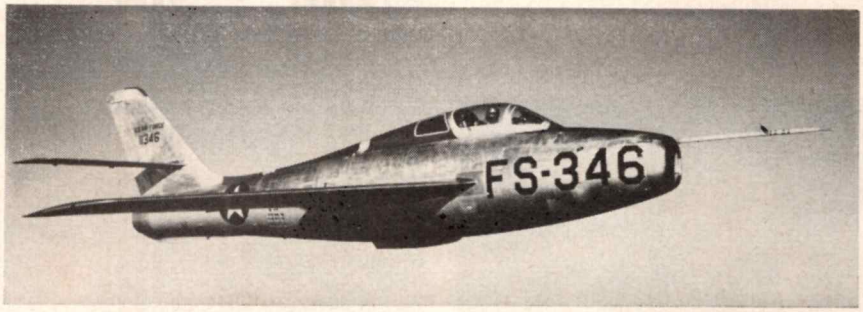
PERFORMANCE: Maximum speed more than 600 mph; Service ceiling above 45,000 ft.

REMARKS: First jet all-weather fighter in production, the **Scorpion** incorporates decelerons, combining the function of ailerons and air brakes in the split, lateral control surfaces. Engine location eases replacement and maintenance. Tip tanks provide increased endurance for night search missions. Forward portion of tanks houses rockets. F-89D can carry 104 rockets.

REPUBLIC AVIATION CORP.

FARMINGDALE, L. I., NEW YORK

THUNDERSTREAK F-84F



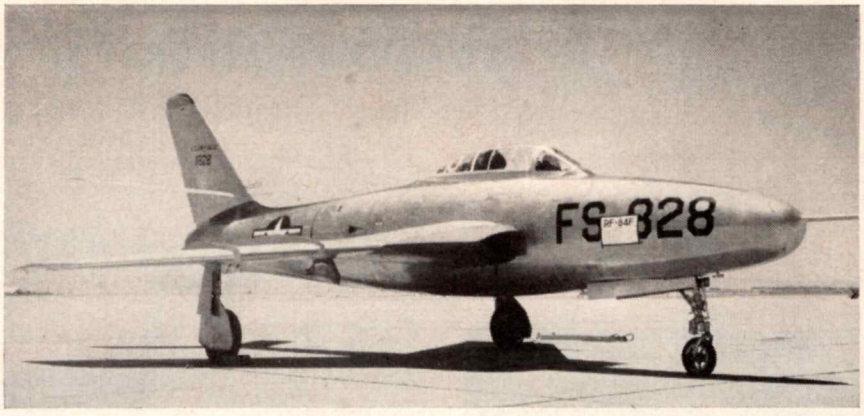
TYPE: Fighter-bomber, single-seat

SPECIFICATIONS: Span 33 ft. 6 in.; Length 43 ft. 4 in.; Height 14 ft. 4 in. Engine Wright J65-W-3, 7500 lb. static thrust. External fuel capacity more than 1000 gal. Gross weight more than 25,000 lb.

PERFORMANCE: Maximum speed 710 mph. Service ceiling 50,000 ft. Rate-of-climb 7500 fpm. Range (maximum fuel) more than 2500 miles.

REMARKS: Swept-wing version of famed Thunderjet fighter, new design features fattened fuselage for larger J65 engine, faired aft canopy structure, numerous detailed refinements. Currently in vast quantity production by both Republic and General Motors. Structure uses heavy forge press parts.

THUNDERSTREAK RF-84F



TYPE: Photo-reconnaissance

SPECIFICATIONS: Span 33 ft. 6 in.; Length 47 ft. 6½ in.; Height 15 ft. Engine Wright J65-W-3, 7500 lb. static thrust. Armament four 0.50-caliber machine guns mounted in wing roots. Gross weight more than 25,000 lb.

PERFORMANCE: Maximum speed 715 mph. Service ceiling 50,000 ft. Rate-of-climb 8000 fpm. Range (maximum fuel) 3000 miles.

REMARKS: Similar to F-84F, new version features wing root air inlets to clear nose for various combinations of automatic and remote-control cameras. High speed, high altitude reconnaissance will be possible with the very high performance of the new photo plane. Quantity production alternates on the assembly lines with the F-84F. Modified version operates as parasite in Convair B-36 belly.

COMPRESSING TIME

In any security program *time* is the one irreplaceable element. Making the most of time is particularly vital in guided missiles projects. Fairchild's Guided Missiles Division has demonstrated its ability to "spend" time effectively. Its completely integrated engineering and production organization can, in effect, *compress time.*

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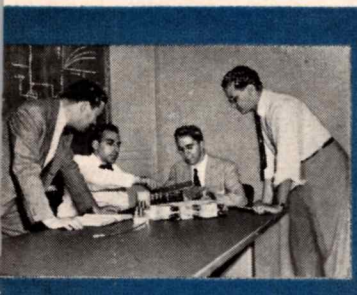
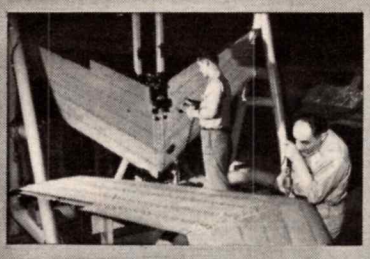
It *has* done so.





ENGINE AND AIRPLANE CORPORATION

FAIRCHILD

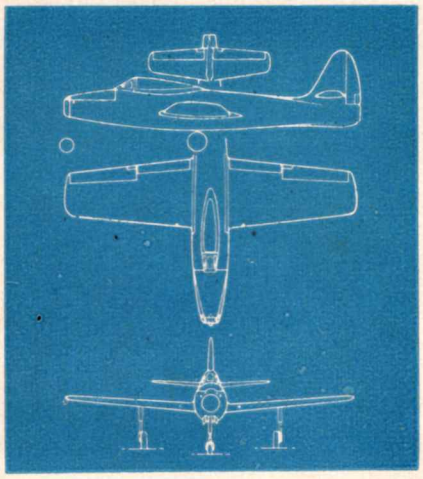
Guided Missiles Division

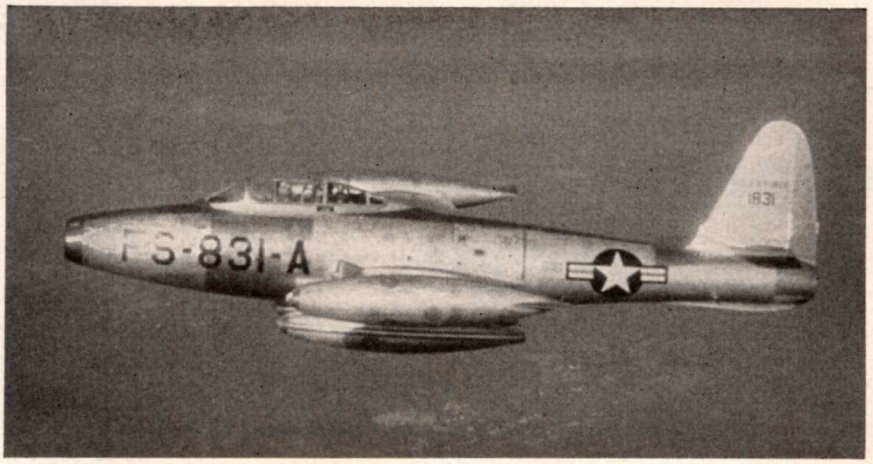
WYANDANCH, N. Y.

•

Aircraft Division, Hagerstown, Maryland • Engine Division, Farmingdale, N.Y.
Speed Control Division, Wickliffe, Ohio • Stratos Division, Bay Shore, N.Y.

THUNDERJET F-84G





TYPE: Fighter-Bomber, single-seat

SPECIFICATIONS: Span 36 ft. 4 in.; Length 38 ft. 5 in.; Height 12 ft. 10¼ in.; Empty weight 11,000 lb.; Gross weight 18,000 lb.; Engine Allison J35-A-29, 5600 lb. static thrust, four 1000-lb. auxiliary JATO units; Fuel 920 gal. external; Armament six .50-cal. machine guns, 32 5-in. HVAR or two 1000-lb. bombs plus 10 5-in. HVAR.

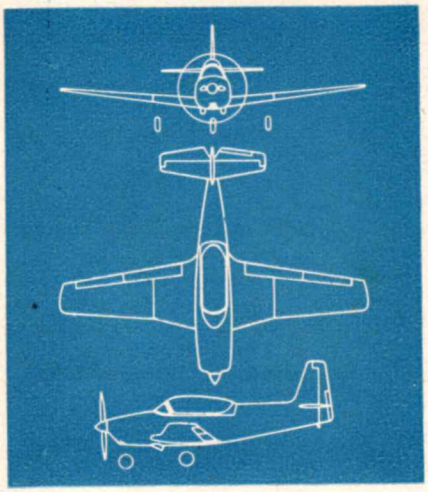
PERFORMANCE: Maximum speed more than 630 mph; Service ceiling more than 45,000 ft.; Combat radius 850 miles normal, more than 1000 miles with four external tanks.

REMARKS: Claimed longest-ranged jet fighter in production, the F-84G is especially designed for ease of access for servicing. Col. Dave Schilling flew Atlantic non-stop with in-flight refueling. More than 380 Thunderjets have been ferried across the Atlantic since September, 1950. The F-84E entered combat in Korea December 7, 1950 and conquered the MIG-15 in numerous actions. Standard USAF fighter-bomber in service.

TEMCO AIRCRAFT CORP.

DALLAS, TEXAS

TEMCO PLEBE



TYPE: Trainer

SPECIFICATIONS: Span 31 ft. 2½ in.; Length 24 ft. 5 in.; Height 9 ft. 10 in.; Engine Continental O-470-13, 225 hp @ 2600 rpm takeoff, 175 hp @ 2400 rpm cruise; Propeller McCauley constant speed; Gross weight 2500 lb.

PERFORMANCE: Maximum speed 192 mph @ s.l.; Cruising speed 171 mph @ s.l.; Rate-of-climb 1350 fpm; Service ceiling 20,700 ft.; Endurance 5 hr. 15 min.

REMARKS: Designed and completed in 75 days for Navy trainer competition, new trainer features free-blown canopy, extra-wide landing gear tread on tricycle landing gear, high producibility enabling rapid, low-cost production. Two trainers have been completed and are undergoing demonstration and evaluation by Navy procurement and training officers.

SAFER SHIPS TO FLY—BECAUSE OF

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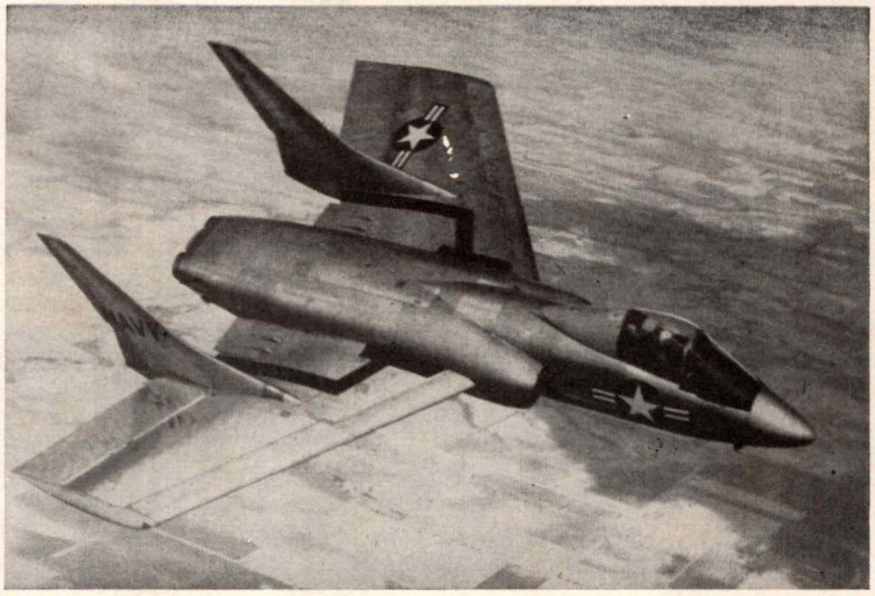
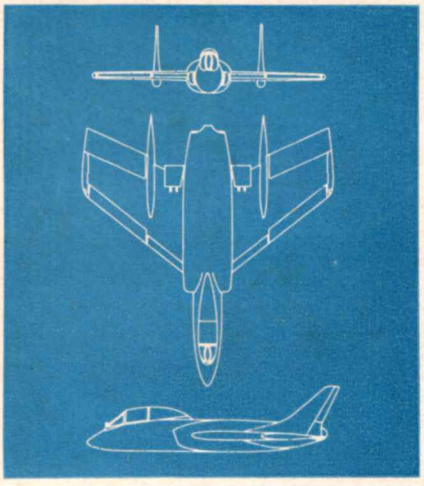
CHANCE VOUGHT AIRCRAFT

DALLAS, TEXAS

CUTLASS F7U-3





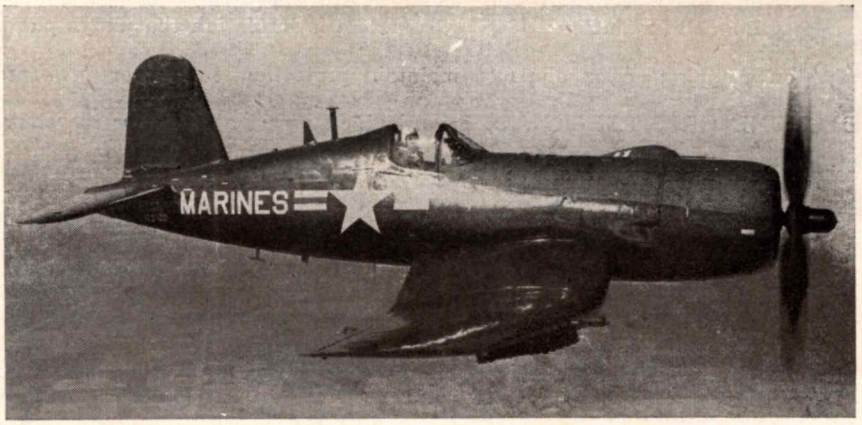
TYPE: Navy interceptor

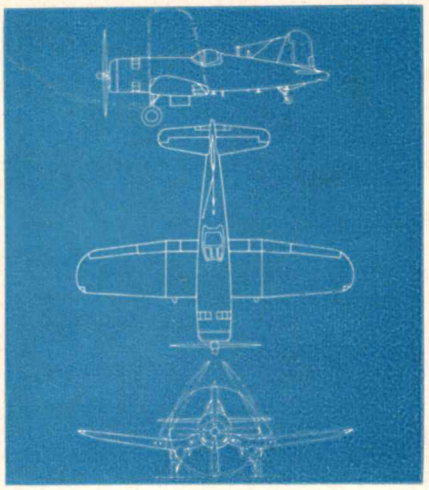
SPECIFICATIONS: Span 38 ft. 8 in.; Length 40 ft. 10½ in.; Gross weight 23,300 lb.; Engine (2) Westinghouse J46-WE-2, 4800 lb. thrust unaugmented; 8200 lb. thrust with afterburning.

PERFORMANCE: Maximum speed 700 mph; Service ceiling more than 50,000 ft.; Combat radius 300 miles; Rate-of-climb more than 12,000 fpm.

REMARKS: Fastest and most rapid climbing Navy fighter in current production, the **Cutlass** is a tailless type with vertical surfaces attached to wing trailing edge. Leading edge slats and air brakes are used to slow landing speed. A small production quantity of F7U-1 is now in training service but a large production order built. A2U is Marine ground support version.

CORSAIR AU-1





TYPE: Fighter, single-seat

SPECIFICATIONS: Span 40 ft. 11¾ in.; Length 34 ft. 6¼ in. Height 13 ft.; Empty weight 10,418 lb.; Gross weight 13,300 lb. Engine Pratt & Whitney R-2800-83W, 2100 hp take-off; Armament four 20mm cannon; eight 5-in. HVAR or eight 3½-in. HVAR; 4000 lb. bombs; Fuel 234 gal. internal plus two 150-gal external tanks; Main wheel 32 x 8, solid tail wheel; Electrical system 30-v, 200 amp d.c.

PERFORMANCE: Maximum speed 470 mph; Service ceiling 40,000 ft.; Rate-of-climb 4800 fpm; Range 1120 miles.

REMARKS: Last of 12,751 delivered January, 1953 more than a decade after its initial test flight. The ageless **Corsair** went into action in Korea upon the outbreak of hostilities, remains the Marine Corps' prime aerial weapon. F4U-5N is nightfighter version with radar antenna mounted in fairing on starboard wing. AU-1 is redesignated F4U-6 model; F4U-7 model delivered to France for Viet Nam. Last piston-engined fighter produced in America.

Here, at the Scintilla Division of Bendix, the word SERVICE is much more than the name of a department. It is a vitally important part of our over-all operations. Together with Research, Engineering and Manufacturing—Service might well be termed the fourth dimension of our business.

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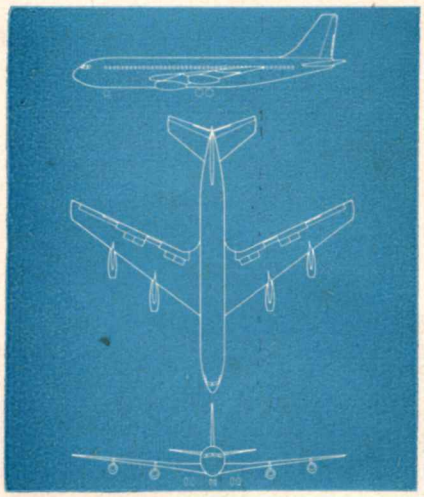
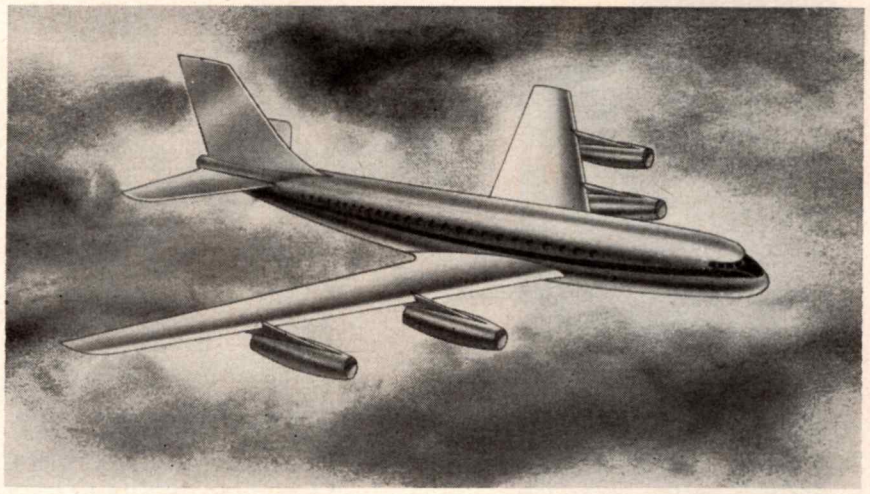
JET TRANSPORTS

BOEING AIRPLANE CO.

SEATTLE, WASHINGTON

BOEING 707





TYPE: 80-130 passenger

SPECIFICATIONS: Span 130 ft.; Length 127 ft. 10 in.; Height 38 ft. 3 in.; Wing area 2400 sq. ft.; Empty weight 88,890 lb.; Gross weight 190,000 lb.; Engine (4) Pratt & Whitnew J57, 10,000 lb. thrust ea.; Fuel 13,680 gal.

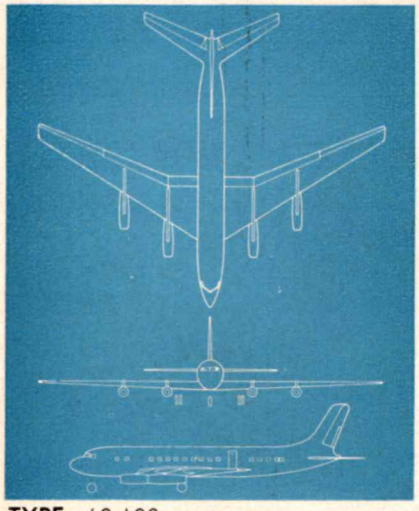
PERFORMANCE: Maximum speed 550 mph @ 35,000 ft.; Cruising speed 500 mph @ 35,000 ft.; Takeoff distance over 50-ft. obstacle 6400 ft. @ 180,000 lb. weight; Landing distance over 50-ft. obstacle 6000 ft. at start of flight to 40,000 ft. at end of cruise. Stalling speed 136 mph @ 190,000 lb., 116 mph @ 160,000 lb. Range 2300 mi. domestic version.

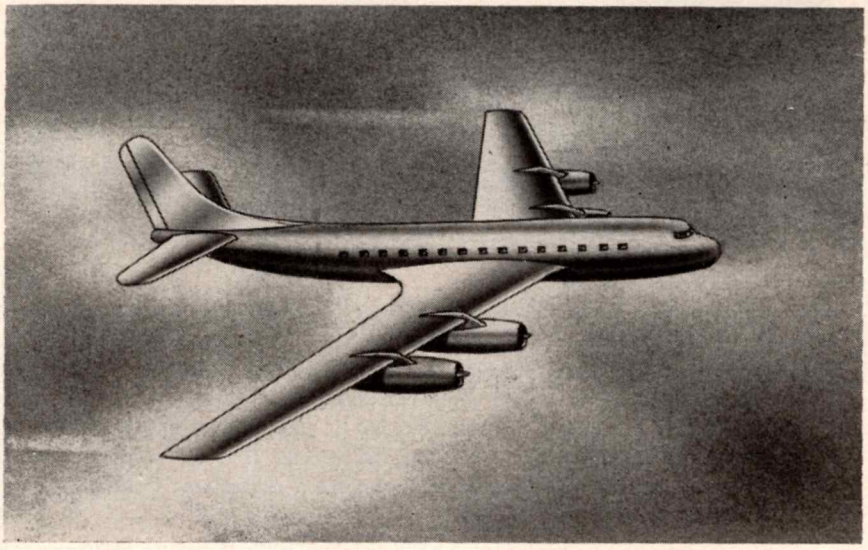
REMARKS: Nearing completion, the 707 will be America's first civil jet transport, is scheduled to fly in August-September. Cabin is 89 ft. 7 in. long.

DOUGLAS AIRCRAFT CO., INC.

SANTA MONICA, CALIFORNIA

DOUGLAS DC-8





TYPE: 60-100 passengers

SPECIFICATIONS: Span 114 ft.; Length 114 ft.; Height 32 ft.; Gross weight 158,000 lb.; Engine (4) Pratt and Whieney J57, 10,000 lb. static thrust, or (4) Wright J67, 12,000 lb. thrust; Fuel 7600 gal. internal, 2400 gal. external for maximum range.

PERFORMANCE: Maximum speed 620 mph @ 32,000 ft.; Cruising speed 574 mph @ 32,000 ft.; Service ceiling 45,000 ft.; Takeoff over 50-ft. obstacle 5900 ft.; Land over 50-ft. obstacle 5400 ft.; Range 1200 mi. domestic version.

REMARKS: Swept-wing version of DC-7, design features pod installation of jet engines, auxiliary fuel tanks suspended below wings. One of several "finalized" designs, the DC-8 in its present form is a short-range domestic jet transport. Substantially larger jet transport with nonstop range of 2400 mi. has also been finalized. So far as can be determined, Douglas has not yet given the "go ahead" on the DC-8 prototype.

ZENITH "covers" the "stinger" in the Navy Neptune's tail

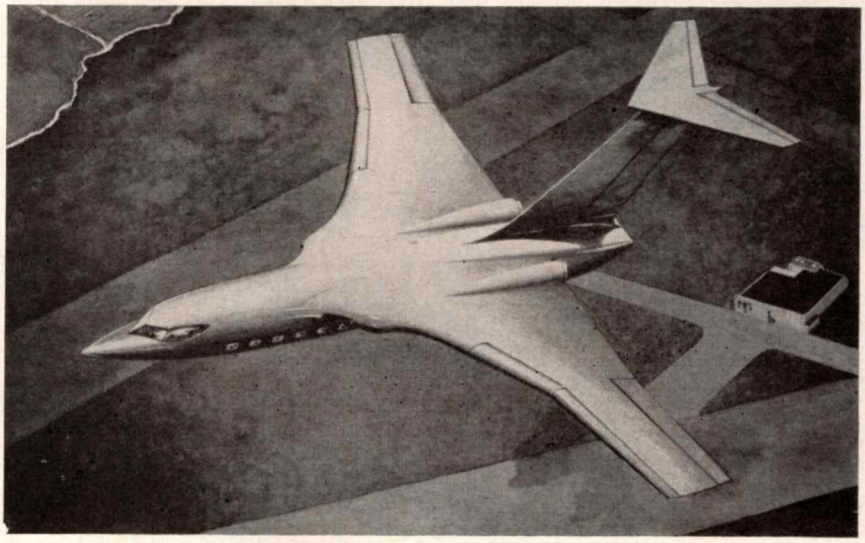
The U.S. Navy Neptune — Lockheed's P2V-5 — has a new elongated "stinger tail" which encloses even more anti-submarine equipment than standard models carry. These new weapons seek out and localize enemy submarines lurking hundreds of feet beneath the ocean's surface. The fiberglass reinforced plastic cone enclosing and protecting this highly sensitive and costly electronic equipment is another outstanding example of ZENITH specialization in radome production. For a speedy solution to any production problems in this field, contact Zenith Plastics Co., Gardena, California.

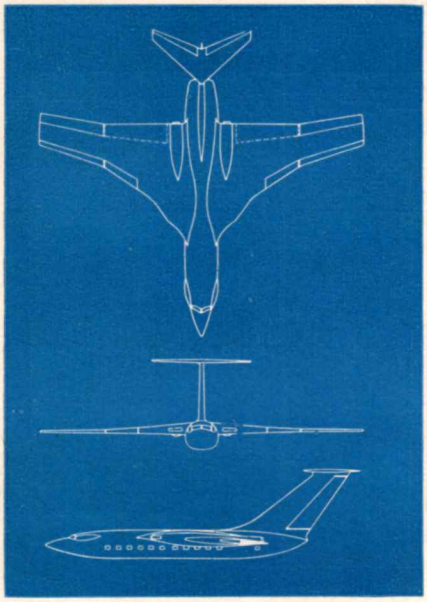
ZENITH PLASTICS CO. Z gardena, calif.

FAIRCHILD AIRCRAFT

HAGERSTOWN, MARYLAND

FAIRCHILD M-186



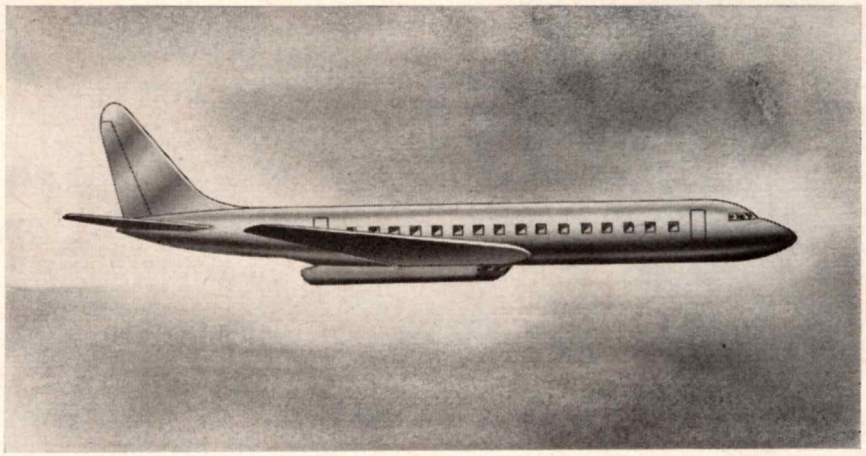


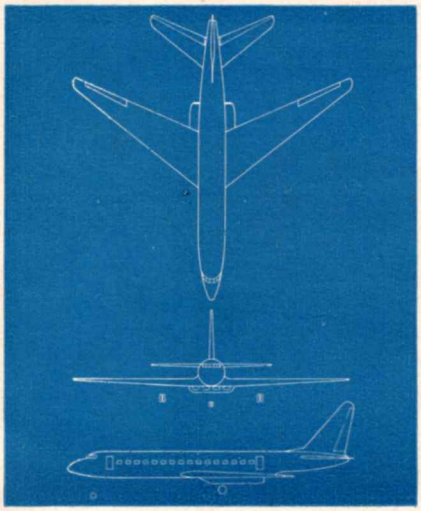
TYPE: Passenger/cargo
SPECIFICATIONS: Span 100 ft.; Length 98 ft. 7 in.; Height 31 ft. 8 in.; Gross weight 75,770 lb. normal, 100,000 lb. maximum; Engine (2) Wright J67, 12,000 lb. static thrust; Fuel 3260 gal. normal, 6000 gal. capacity; Cargo load 14,000 lb. normal, 35,000 lb. max.
PERFORMANCE: Maximum speed 627 mph; Cruise 570 mph @ 46,000 ft.; Rate-of-climb 5750 fpm; Service ceiling 50,000 ft.; Stall speed 109 mph at normal gross weight; Takeoff over 50-ft. obstacle 2690 ft.; Land over 50-ft. obstacle 3150 ft.; Range 2450 mi.
REMARKS: Projected transport features "cusp" wing planform (delta wing inboard, swept wing outboard), carries 44 passengers in two-abreast seats on either side of central aisle. Cargo and passenger loading from tail ramp.

LOCKHEED AIRCRAFT CORP.

BURBANK, CALIFORNIA

LOCKHEED L-193





TYPE: 80-100 passengers
SPECIFICATIONS: Span 155 ft.; Length 168 ft. 6 in.; Height 51 ft. 6 in.; Empty weight 117,800 lb.; Gross weight 260,000 lb.; Engine (4) Wright J67, 12,000 lb. thrust; Fuel 20,000 gal.
PERFORMANCE: Maximum speed 620 mph @ 35,000 ft.; Cruising speed 564 mph @ 35,000 ft.; Range 3500 mi. Takeoff and land within 5000 ft. runway.
REMARKS: Pan American version will include fifth jet engine in tail as auxiliary power for takeoff and climb. Four jet engines installed in lateral row under belly. Lockheed desire to house main fuel tank in fuselage still being debated by Civil Aeronautics Administration. Fastest of the jet transports, new Lockheed will stress long-range characteristics for intercontinental routes. Not yet under construction, new jet transport has been under development for seven years. Construction awaits more powerful turbojet engines on which design is based.

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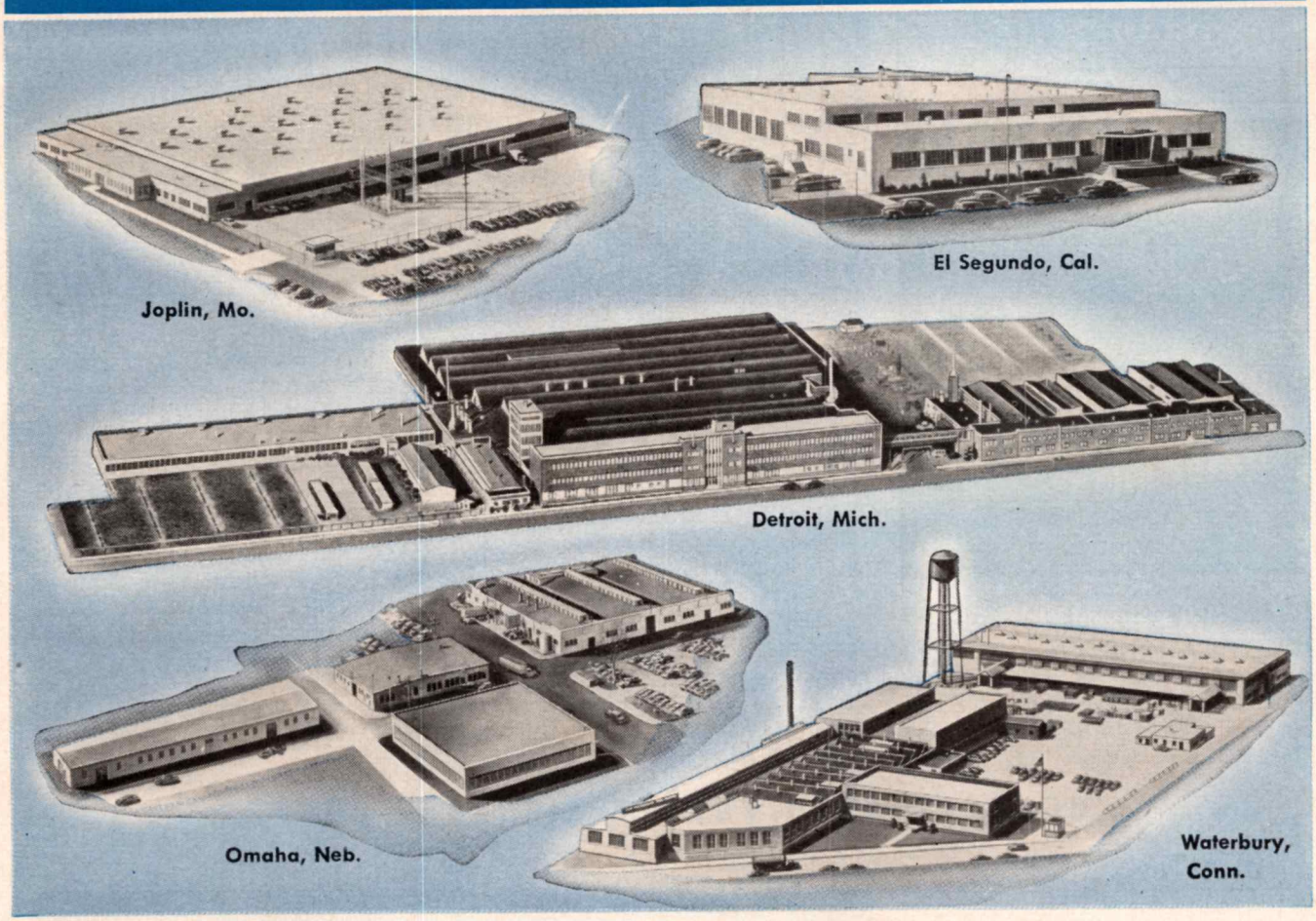

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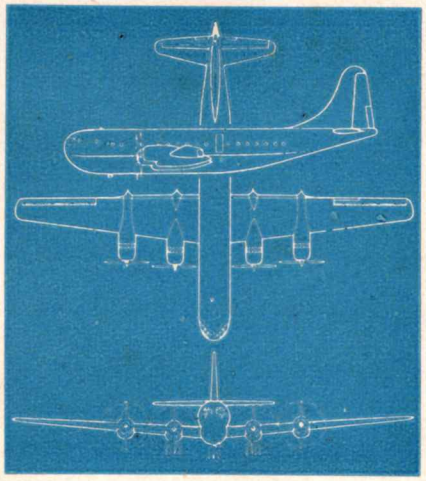
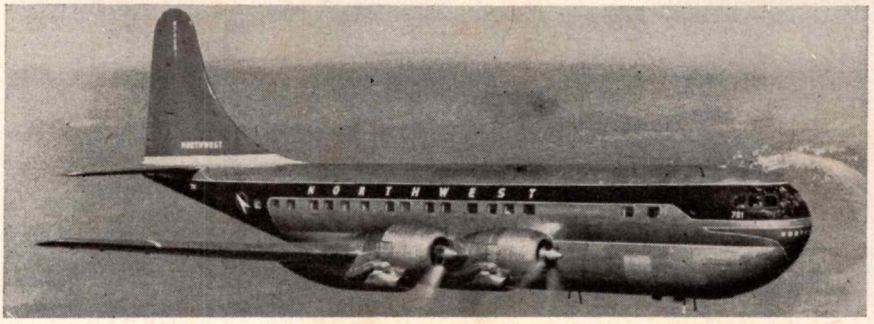
SEATTLE, WASHINGTON

STRATOCRUISER 377





TYPE: 60-75 passengers TC 812

SPECIFICATIONS: Span 141 ft. 3 in.; Length 110 ft. 4 in.; Height 38 ft. 3 in.; Height with tail folded 26 ft. 7 in.; Empty weight 83,500 lb.; Takeoff gross weight 142,500 lb.; Landing gross weight 121,700 lb.; Wing area 1769 sq. ft.; Fuselage 11 ft. wide, 15 ft. 3 in. high; Engine (4) Pratt & Whitney R-4360-TSB3-G, 3500 hp at 2700 hp takeoff water injection, 3250 hp at 2700 rpm dry, 2800 hp at 2550 rpm normal rated, 1900 hp at 2300 rpm cruise; Propeller (4) Curtiss Electric 16 ft. 6 in.; Main tires 56 in. dia.; Nose tires 36 in. dia.; Tread 28 ft. 5.6 in.; Fuel capacity 7790 gal.

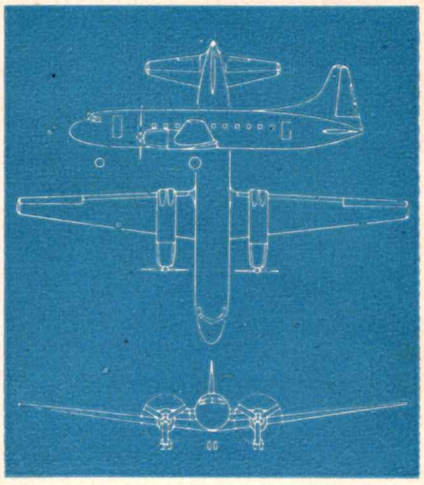
PERFORMANCE: Maximum speed 375 mph; Cruising speed 340 mph at 25,000 ft.; Normal operating altitude 12-25,000 ft.; Service ceiling 33,000 ft.; Rate-of-climb 1100 fpm; Stalling speed 93 mph; Range 4600 miles with 5-ton payload, 3550 miles with 10-ton payload and 3000 miles with 25,000-lb. payload; Takeoff CAR field length maximum weight 6250 ft.; Land with reverse propellers 1230 ft.

REMARKS: Largest production transport in history, Stratocruiser features sea level cabin pressure up to 15,000 ft. and 5500-ft. equivalent cabin pressure at 25,000 ft., Total of 56 has flown 123,700,000 miles carrying 2,294,000 passengers to date on PAA, NWA, UAL and BOAC since 1949.

CONSOLIDATED VULTEE AIRCRAFT CORP.

SAN DIEGO, CALIFORNIA

LINER 340



TYPE: 44-passenger

SPECIFICATIONS: Span 105 ft. 4 in.; Length 79 ft. 2 in.; Height 28 ft. 2 in.; Empty weight 29,486 lb.; Gross weight 47,000 lb.; Wing area 920 sq. ft.; Engine (2) Pratt & Whitney R-2800-CB16, 2400 hp at 2800 rpm at takeoff with water injection, 2050 hp at 2700 rpm at takeoff dry; Propeller (2) Hamilton Standard 13 ft. 6 in.; Fuel 1750 gal.

PERFORMANCE: Maximum speed 314 mph at 16,000 ft.; Cruising speed 292 mph at 1350 hp per engine with 7700-lb. payload over 1000 miles; Cruising speed 288 mph with 10,000-lb. payload over 500 miles at 20,000 ft.; CAR takeoff runway length 4675 ft.

REMARKS: Enlarged Convair Liner is specifically designed for greatly increased range plus four additional passengers. Loading door with integral steps on port side of forward cabin, cargo space forward of passenger compartment; two degrees additional dihedral, engine nacelles moved forward 7 in.; larger tires, longer shock struts. More than 196 on order by 6 U.S. and 13 foreign airlines plus 11 private operators.

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65

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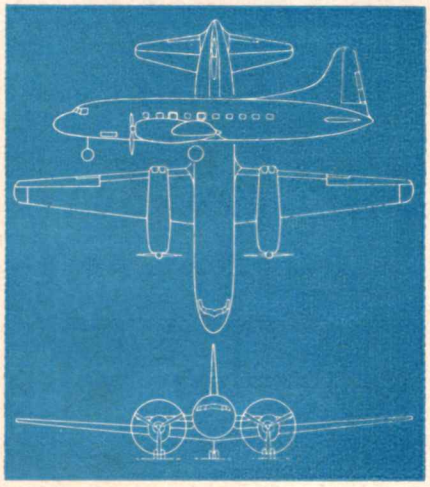
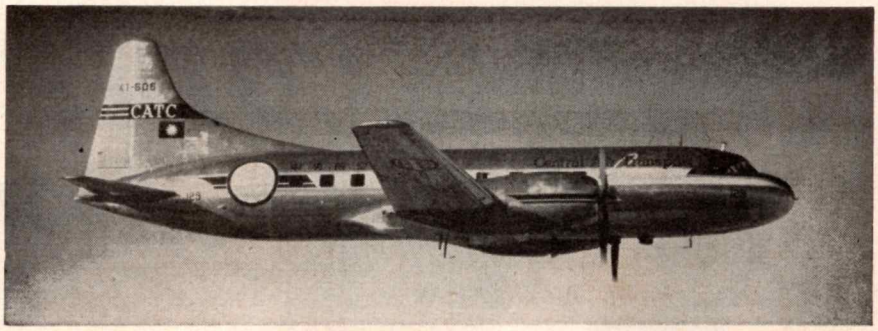
LINER 240





TYPE: 40 passengers TC 793

SPECIFICATIONS: Span 91 ft. 9 in.; Length 74 ft. 8 in.; Height 26 ft. 11 in.; Areas wing 817 sq. ft.; ailerons 44 sq. ft.; flaps 140 sq. ft.; fin 84.4 sq. ft.; rudder 41 sq. ft.; stabilizer 173.7 sq. ft.; elevator 59 sq. ft.; Empty weight 30,345 lb., Gross weight 41,790 lb.; Engine (2) Pratt & Whitney R-2800-CA-18, 2400 hp takeoff; Propeller (2) Hamilton Standard or Curtiss Electric; Fuel 1550 gal.; Main tire 34 x 9.9; Nose tire 26 x 6; Electrical system 24-28-v d.c.

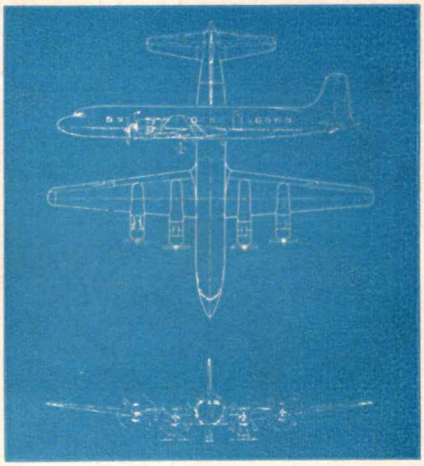
PERFORMANCE: Maximum speed 347 mph at 16,000 ft.; Cruising speed 272 mph at 16,000 ft.; Landing speed 99 mph; Service ceiling 26,200 ft.; Rate-of-climb 1520 fpm.

REMARKS: 176 Convair Liners have been delivered to fifteen domestic and foreign airlines. Jet exhaust system provides 10-12 mph additional speed. Integral stairway on right side of fuselage nose expedites passenger service. Reversible propellers shorten landing run, aid ground maneuvering. Cabin is pressurized and air conditioned.

DOUGLAS AIRCRAFT CO. INC.

SANTA MONICA, CALIFORNIA

DOUGLAS DC-7



TYPE: 95 passengers TC 4A10

SPECIFICATIONS: Span 117 ft. 6 in.; Length 108 ft. 11 in.; Height 28 ft. 7 in.; Wing area 1463 sq. ft.; Empty weight 88,250 lb.; Gross weight 122,200 lb.; Engine (4) Wright R-3350 **Turbo Compound**, 3250 hp for takeoff; Propeller (4) Hamilton Standard 13 ft. 6 in. dia.; Fuel 5512 gal.; Maximum cargo volume 1171 cu. ft. and capacity 19,730 lb.

PERFORMANCE: Maximum speed 410 mph at 22,200 ft.; Cruise 370 mph at 24,500 ft.; Rate-of-climb 1810 fpm; Service ceiling 27,100 ft.; Range 4450 miles.

REMARKS: Latest development of DC-4-DC-6 transport model, the new DC-7 provides greatly increased capacity and performance through use of powerful **Turbo Compound** engines. Fuselage lengthened 3 ft. 4 in. to accommodate additional passenger seats or cargo volume. Inaugural transcontinental non-stop scheduled airline service Nov. 29, 1953. On order by AAL, UAL, NAL, EAL, PAA and Pan American-Grace airlines.

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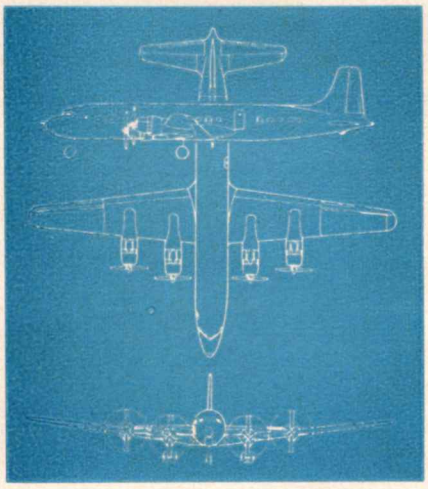
DOUGLAS DC-6B



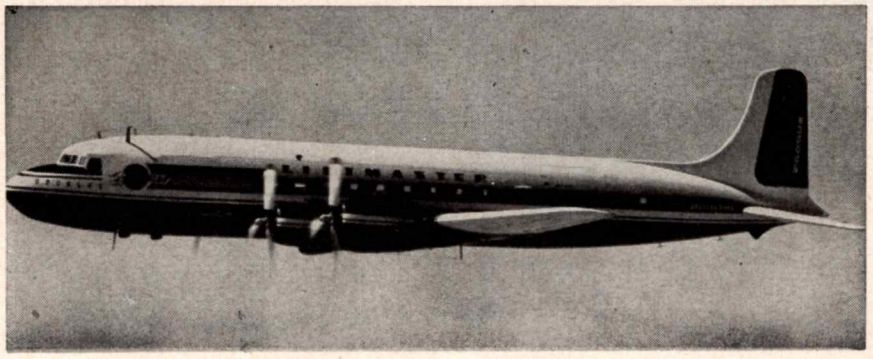
TYPE: 92-passenger TC 6A4

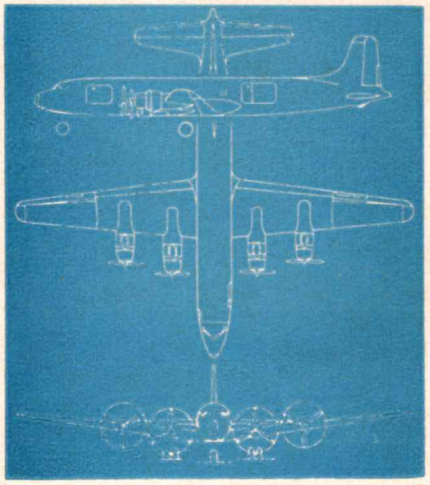
SPECIFICATIONS: Span 117 ft. 6 in.; Length 105 ft. 7 in.; Height 28 ft. 8 in.; Area wing 1463 sq. ft.; Ailerons 85.1 sq. ft.; Flaps 229.4 sq. ft.; Fin 93.4 sq. ft.; Rudder 49 sq. ft.; Stabilizer 210.9 sq. ft.; Elevator 108.9 sq. ft.; Empty weight 54,148 lb.; Gross weight 107,000 lb.; Engine (4) Pratt & Whitney R-2800-CB17, 2500 hp at 2800 rpm at takeoff with water injection, 2050 hp at 2700 rpm at takeoff dry, 1900 hp normal rated; Propellers (4) Hamilton Standard full-feathering reversible-pitch; Fuel 5530 gal.; Main tire 15.50 x 20; Nose tire 44 in.; Electrical system 24-28-v d.c.; Cargo 970 cu. ft.

PERFORMANCE: Maximum speed 370 mph at 20,500 ft.; 318 mph at sea level; Cruising speed 323 mph at 22,700 ft.; Rate-of-climb 1020 fpm; Service ceiling 27,000 ft.; Range 4970 mi. max.

REMARKS: Passenger version of the lengthened DC-6A, the DC-6B accommodates 44 passengers in a luxury version but as high as 89 in its air coach version. Navy uses as R6D-1, USAF operates as C-118A. Ordered by 22 civil airlines.

DOUGLAS DC-6A





TYPE: Cargo TC 6A3

SPECIFICATIONS: Span 117 ft. 6 in.; Length 105 ft. 7 in.; Height 28 ft. 8 in.; Area wing 1463, ailerons 85.1 sq. ft.; Flaps 228.4 sq. ft.; Fin 93.4 sq. ft.; Rudder 49 sq. ft.; Stabilizer 210.9 sq. ft.; Elevator 108.9 sq. ft.; Empty weight 49,767 lb.; Gross weight 106,000 lb; Engine (4) Pratt & Whitney R-2800-CB17, 2500 hp at 2800 rpm at takeoff with water injection, 2050 hp at 2700 rpm at takeoff dry, 1900 hp normal rated; Propellers (4) Hamilton Standard full-feathering, reversible pitch; Fuel 5380 gal.; Main tire 15.50 x 20; Nose tire 44 in.; Electrical system 24-28-v d.c.; Cargo volume 5000 cu. ft.

PERFORMANCE: Maximum speed 370 mph at 20,500 ft.; 318 mph at sea level; Cruising speed 316 mph at 23,100 ft.; Rate-of-climb 1020 fpm; Service ceiling 27,000 ft.; Range 4540 miles.

REMARKS: An all-cargo version of the famed DC-6 with lengthened fuselage and improved engines, the DC-6A Liftmaster carries 28,700 lb. of cargo over more than 4,000 miles.

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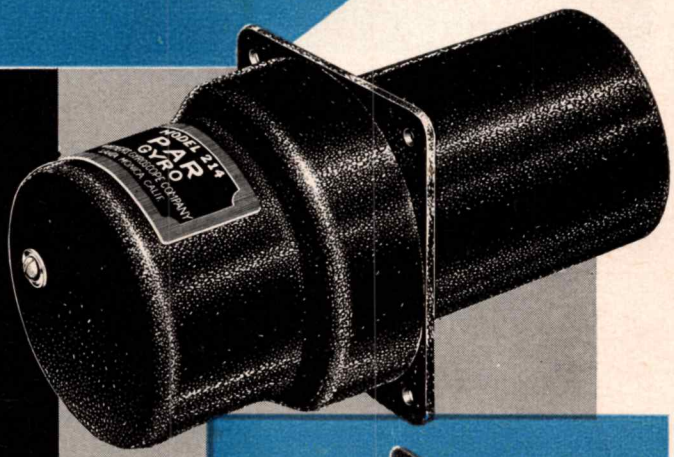

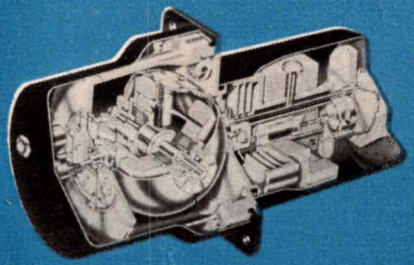

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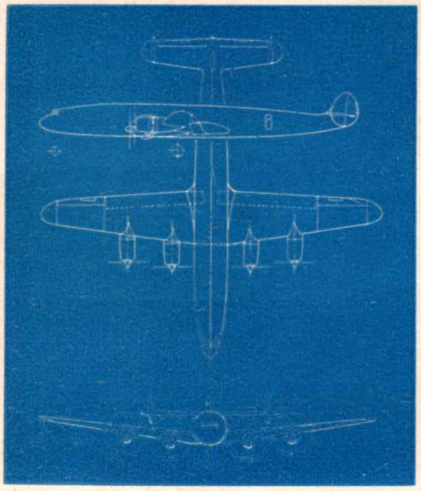
LOCKHEED AIRCRAFT CORP.

BURBANK, CALIFORNIA

CONSTELLATION 1049C



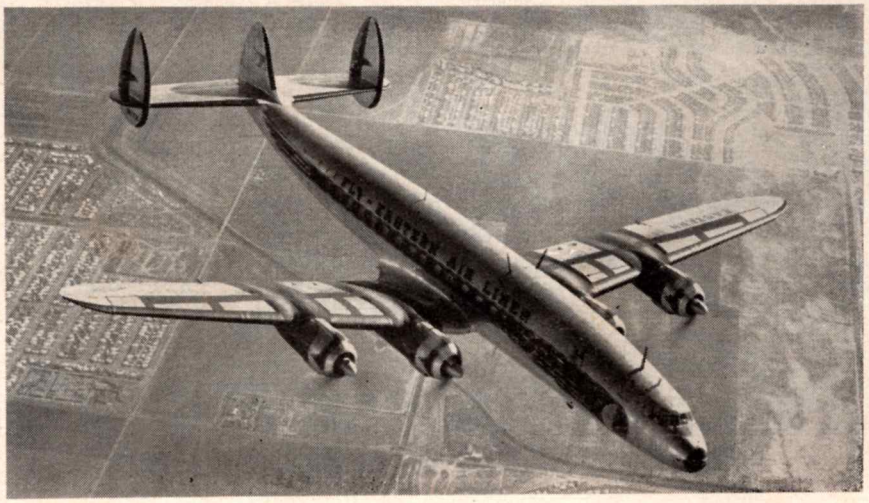
TYPE: 63-99 passenger TC 6A5

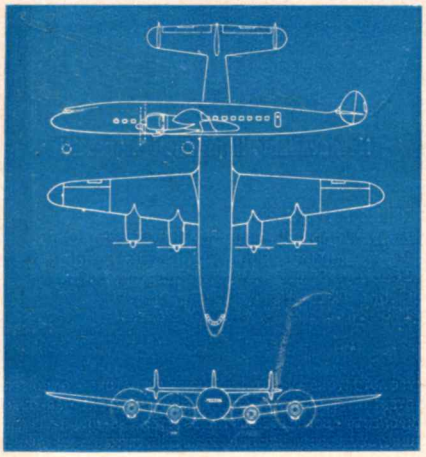
SPECIFICATIONS: Span 123 ft.; Length 113 ft. 7 in.; Height 24 ft. 9 in. Empty weight 71,000 lb.; Gross weight 133,000 lb. Engine (4) Wright 972TC18DA1, 3250 hp at 2900 rpm at takeoff. Fuel capacity 6550 gal. Cargo capacity 728 cu. ft.; Floor area 744 sq. ft.

PERFORMANCE: Maximum speed 376 mph at 20,000 ft., cruising speed 344 mph at 22,600 ft. Takeoff distance to clear 50-ft. obst. 9600 ft. at sea level at full gross weight. Rate-of-climb 1140 fpm. Maximum range 4820 miles.

REMARKS: "Compound Connie" now on order by U.S. and international airlines, U.S. Navy (R7V-1), U. S. Air Force (C-121B). Infinite variety of internal arrangements available, including famed Dreyfus-styled luxury passenger interior. Other models include 1049E with 130,000-lb. gross, Navy R7V-2 with P&W T34 turboprop engines.

CONSTELLATION 1049



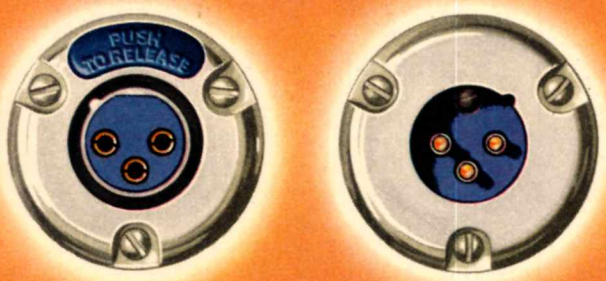


TYPE: 66-88 passenger TC 6A5

SPECIFICATIONS: Span 123 ft.; Length 113 ft. 7 in.; Height 24 ft. 9 in. Empty weight 68,642 lb.; Gross weight 120,000 lb. Engine (4) Wright 956C18CA1, 2700 hp at 2900 rpm at takeoff. Fuel capacity 6550 gal. Cargo capacity 715 cu. ft.; Floor area 744 sq. ft.

PERFORMANCE: Maximum speed 346 mph at 17,500 ft.; Cruising speed 327 mph at 21,500 ft. Takeoff distance to clear 50-ft. obst. 5200 ft. at sea level at full gross weight. Rate-of-climb 1050 fpm. Maximum range 5200 miles at 10,000 ft.

REMARKS: Regular domestic passenger version with standard Wright Cyclone engines, the 1049 is in service on Eastern and Trans World airlines. These models may be easily converted to Turbo-Compound engines at a later date.



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MICROPHONE CONNECTORS

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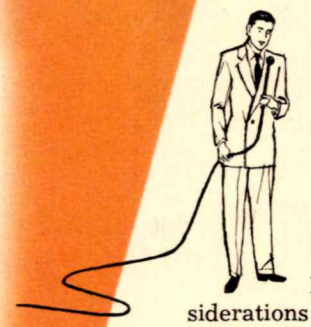

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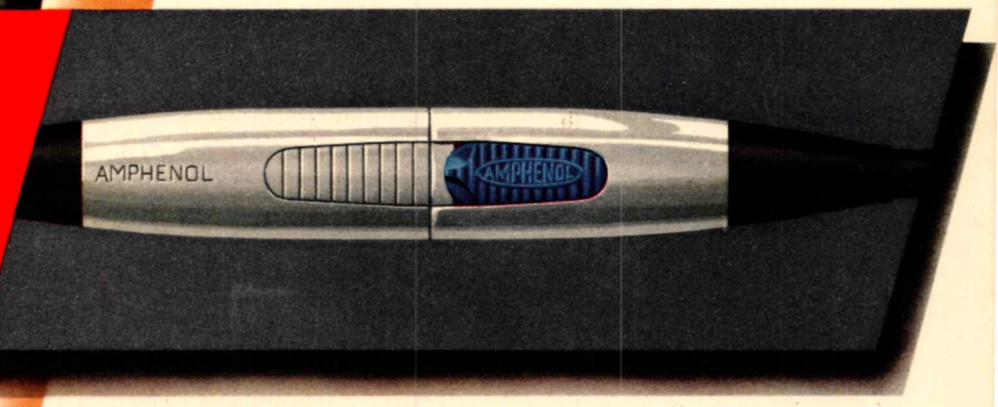

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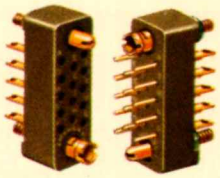

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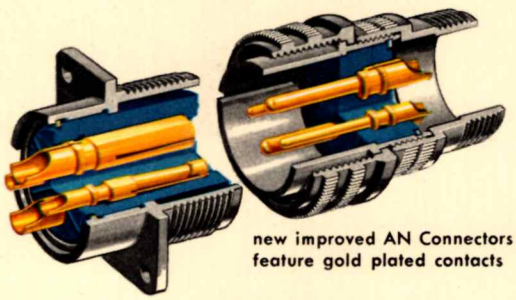

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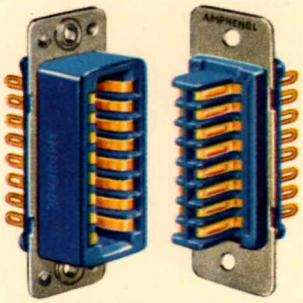
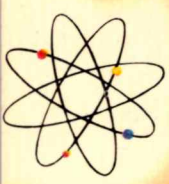


fastest connect and disconnect with Blue Ribbon Connectors

PRECISION MADE COMPONENTS FOR THE ELECTRONICS INDUSTRY



AMPHENOL makes over 11,000 separate cataloged components that are used and relied upon by the electronics industry the free world over. These components include the famous AN connectors, RF connectors, cables and many special types of sockets, plugs and connectors. Their applications vary, but the distinguishing feature of all AMPHENOL components is present in each: *quality*.

The quality that is the mark of AMPHENOL components is the product of both precision engineering and precision manufacturing. Neither of these would result in quality alone. But the teamwork of the two produces the finest components available—the electronics industry has learned to rely upon AMPHENOL quality.

Not only the components on this page but thousands more are listed in the new AMPHENOL Catalog B-3. From the B-3 you will be able to fill the majority of your component needs. Where more specialized information is desired, the B-3 also lists the special AMPHENOL catalogs, A, C and D, as well as other product literature.

AN Electrical and RF Connectors
Microphone Connectors
Radio and Industrial Tube Sockets
RF Cable
TV, FM and Communication Antennas
Cable Assemblies
Radar and Radio Components

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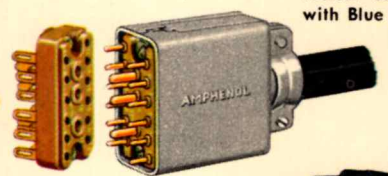

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better design, better construction on all RF Connectors

a complete Cataloging service to the electronics industry

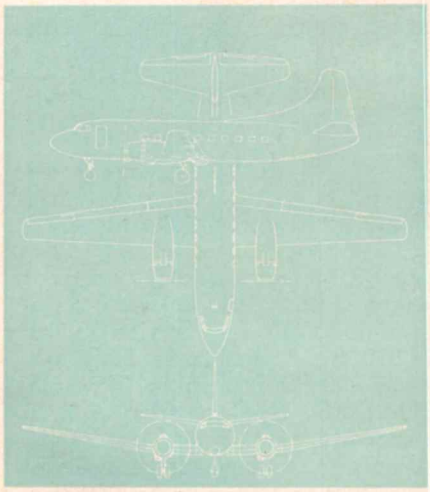
American Phenolic Corporation, Chicago 50, Illinois

Amform 2382—24400 Printed in U.S.A.

GLENN L. MARTIN CO.

BALTIMORE, MARYLAND

MARTIN 4-0-4



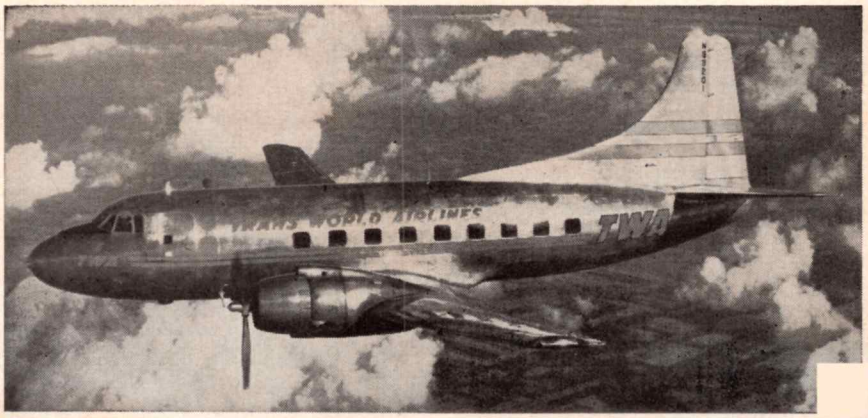
TYPE: 40 passengers TC 1A7

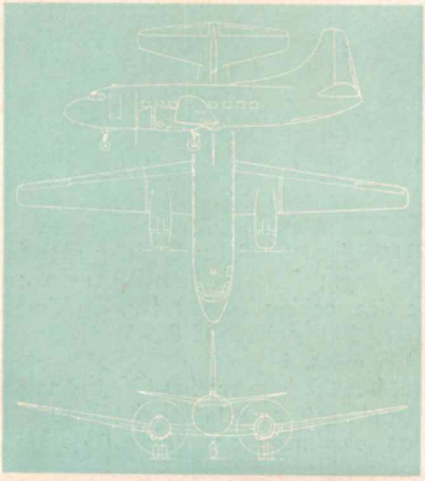
SPECIFICATIONS: Span 105 ft. 8 in.; Length 79 ft. 2 in.; Height 27 ft. 9 in.; Empty weight 29,486 lb.; Gross weight 45,000 lb.; Engine (2) Pratt & Whitney R-2800-CB-16, 2400 hp at takeoff; Fuel 1700 gal.; Propeller (2) Hamilton Standard full-feathering, reverse-pitch, 13 ft. 1 in.; Area wing 864 sq. ft.; Aileron 41.8 sq. ft.; flaps 150 sq. ft.; fin 70 sq. ft.; rudder 39.7 sq. ft.; Stabilizer 210 sq. ft.; elevator 49 sq. ft.; Main tire 12.50 x 16; Nose tire 9.50 x 16; Electrical system 24-28-v d.c. and 115-v 400-cycle a.c. systems.

PERFORMANCE: Maximum speed 312 mph at 14,500 ft.; Cruising speed 280 mph at 18,000 ft.; Rate-of-climb 1790 fpm; Service ceiling 27,300 ft.; Range 800 miles.

REMARKS: Eastern Air Lines and TWA have a total of 75 model 4-0-4 transports in service. Differs from standard 2-0-2 in 39-in. additional fuselage length and increased passenger capacity from 36 to 40. Plane is stressed for eventual turboprop power.

MARTIN 2-0-2A





TYPE: 36 passengers TC 795

SPECIFICATIONS: Span 93 ft. 3 in.; Length 71 ft. 4 in.; Height 28 ft. 5 in.; Areas wing 864 sq. ft.; ailerons 41.8 sq. ft.; flaps 150 sq. ft.; fin 70 sq. ft.; rudder 39.7 sq. ft.; stabilizer 210 sq. ft.; elevator 49 sq. ft.; Empty weight 27,060; Gross weight 43,000 lb.; Engine (2) Pratt & Whitney R-2800-CB-16, 2400 hp for takeoff; Fuel 1350 gal.; Main Tire 12.50 x 16; Nose Tire 9.50 x 16; Electrical system 24-28-v d.c. plus 115-v 400-cycle a.c. system.

PERFORMANCE: Maximum speed 312 mph at 14,500 ft.; Cruising speed 281 mph at 12,000 ft.; Rate-of-climb 1790 fpm; Service ceiling 24,300 ft.

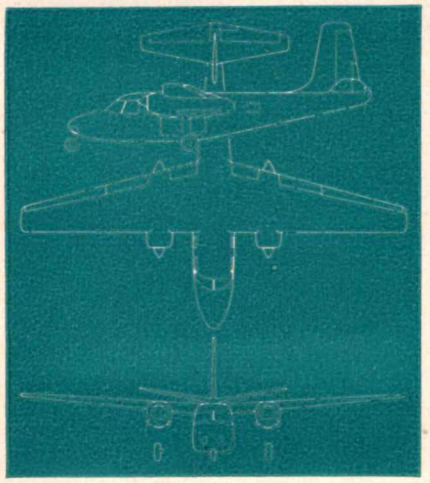
REMARKS: Special group of 12 airplanes delivered to TWA, the 2-0-2A differs from the standard 2-0-2 model only in small changes in cabin interior, increased gross weight, increased fuel capacity and slightly different engine.

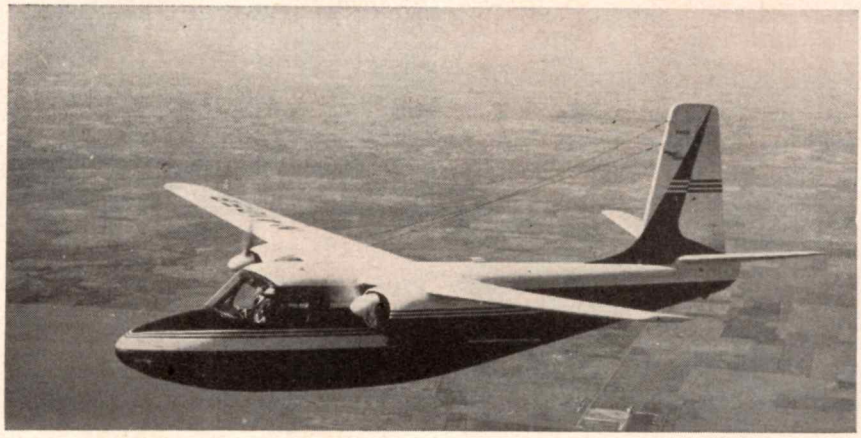
EXECUTIVE

AERO DESIGN and ENGINEERING CO.

OKLAHOMA CITY, OKLAHOMA

COMMANDER 520





TYPE: Five-place TC 6A1

SPECIFICATIONS: Span 44 ft.; Length 34 ft. 2½ in.; Height 14 ft.; Empty weight 3650 lb.; Gross weight 5500 lb.; Engine (2) Lycoming GO-435-C2, 260 hp takeoff; 240 hp at 3000 rpm normal rated; Main tire 7.50 x 10; nose tire 6.00 x 6; Electrical system 12-v d.c.

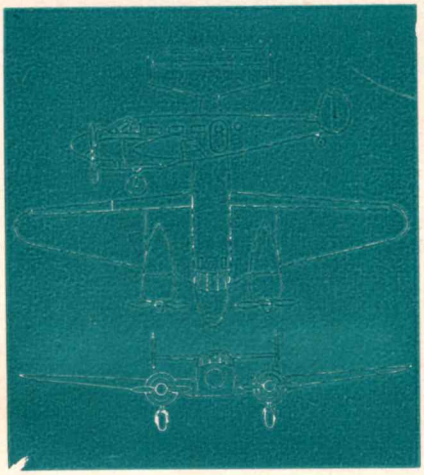
PERFORMANCE: Maximum speed 211 mph at sea level; Cruising speed 75 percent rated power sea level 185 mph; Cruising speed 70 percent power at 10,000 ft. 198 mph; Rate-of-climb 1750 ft.; Service ceiling 24,000 ft.; Takeoff over 50-ft. obstacle 950 ft.; Stall speed 64.5 mph.

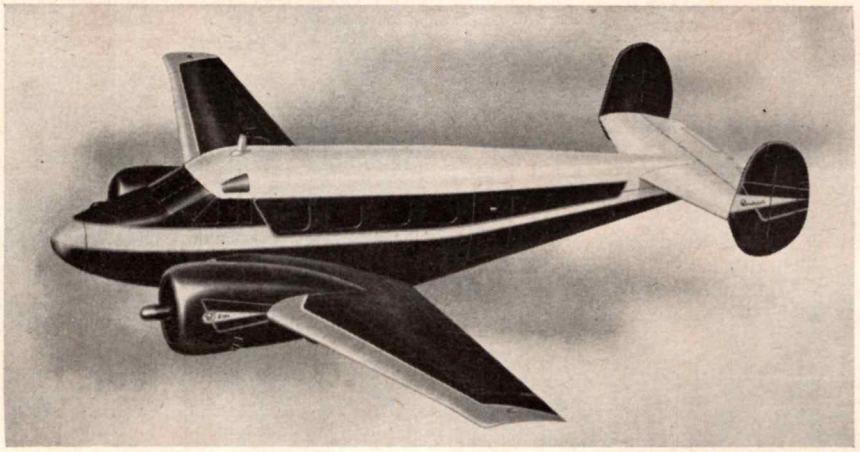
REMARKS: Now in production in company's new factory at Tulakes Airport, the Commander is available as passenger, rescue, cargo, seaplane, ski and gas turbine transport.

BEECH AIRCRAFT CORP.

WICHITA, KANSAS

BEECH SUPER 18



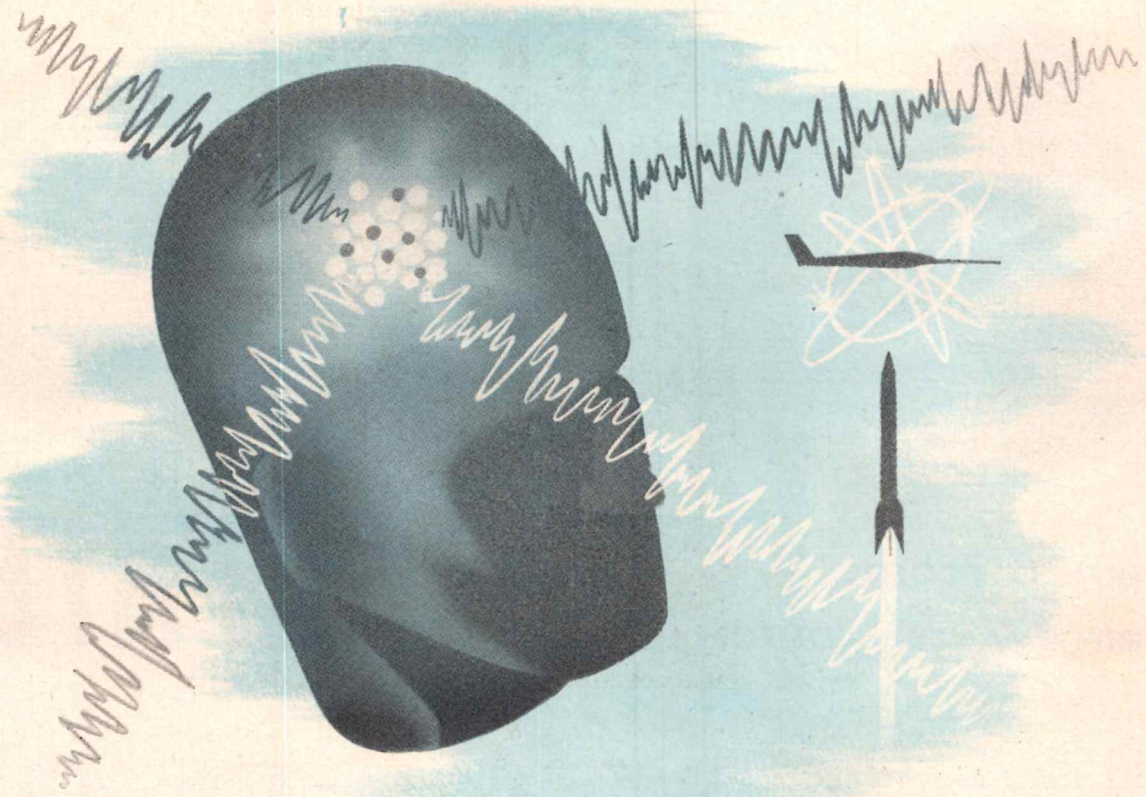


TYPE: 10-place

SPECIFICATIONS: Span 47 ft. 7 in.; Length 33 ft. 11½ in.; Height 9 ft. 2½ in.; Empty weight 5770 lb.; Gross weight 9300 lb.; Wing area 349 sq. ft.; Engine (2) Pratt & Whitney R-985-B5, 450 hp at 2300 rpm at takeoff, 300 hp at 2000 rpm cruise power; Propeller (2) Hamilton Standard constant speed; Fuel 206 gal. normal, 286 gal. with auxiliary tanks;

PERFORMANCE: Maximum speed 231 mph at 5000 ft.; Cruising speed 215 mph; Rate-of-climb 1250 fpm; Service ceiling 20,500 ft.; Cruising speed 211 mph at 10,000 ft.; Range 1455 miles. †

REMARKS: Improved D-18S, the new model features external drag reduction plus numerous internal design and comfort features.



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As the nerve centers of the body control our every move . . . so Electronics dominates the vast air space in which we fly. Here at Air Associates we know the electronics needs of aviation, for we began operating in this exacting field prior to World War II. Our Engineering staff is competent and paces the industry in the design and development of electronic systems for all types of functions, civil or military.

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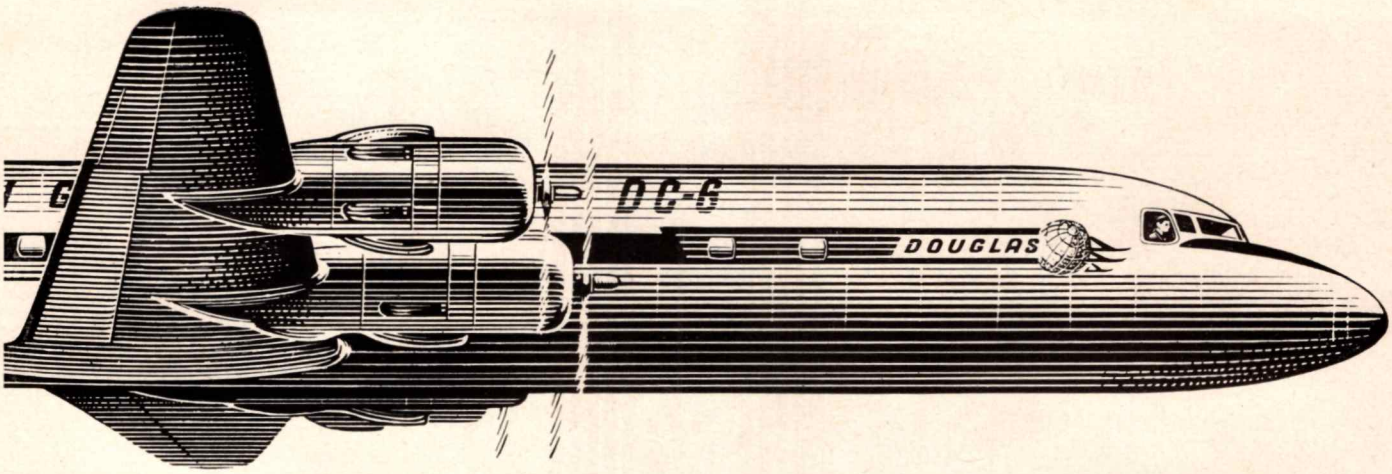

IN TERMS OF PROFIT...

PERFORMANCE...COMFORT

THE GREATEST

Latest model of the famed Douglas DC-6, the DC-6B represents the ultimate in this series of great, four-engine air transports. It was the DC-6B which flew 5700 miles from Los Angeles to Paris last May in 20 hours to complete the longest non-stop flight ever made by a commercial airliner. The superior performance of this airplane under all conditions and its acceptance by the flying public have established it as an outstanding profit-maker.

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"Queen of the Fleet" on these leading airlines of the world is the famous Douglas DC-6 or DC-6B

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JAL *Japanese* • KLM *Netherlands* • LAI *Italian* • *LAN *Chilean* • NATIONAL *U. S.* • *NORTH AMERICAN *U. S.* • NORTHWEST *U. S.* • PAL *Philippine*
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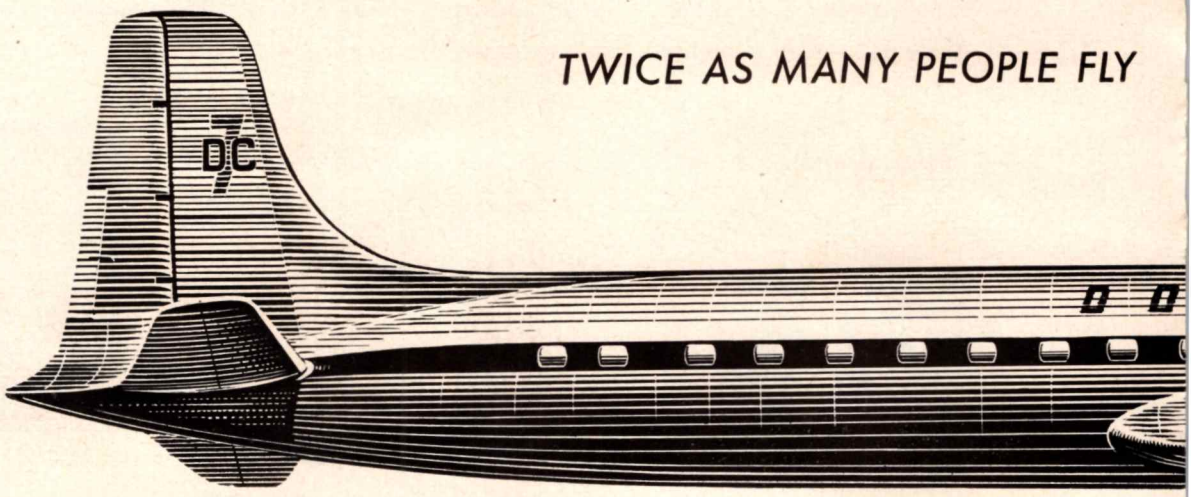
TAI *French* • UAT *French* • UNITED *U. S.* • WESTERN *U. S.* *Soon



TWICE AS MANY PEOPLE FLY

AIRLINERS EVER BUILT!

DC-7 SERIES

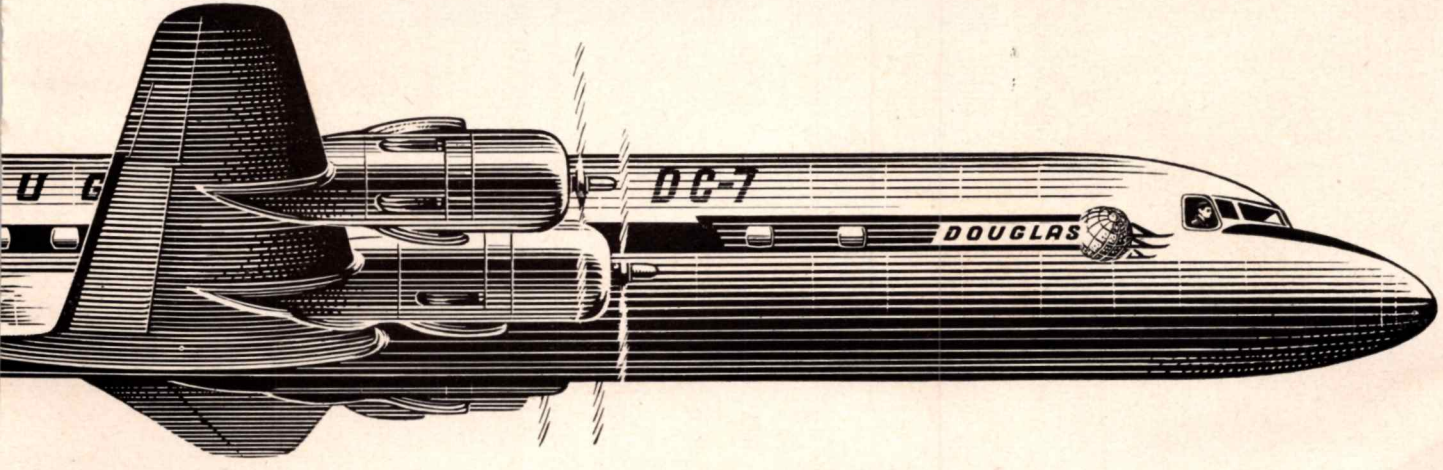
Already 88 of these new turbo-compound sky giants have been ordered by the airlines. This brings to a total of 476 the number of DC-6, DC-6B and DC-7 airplanes delivered by Douglas or under construction. So aerodynamically clean . . . so powerful is the DC-7 that it is the only commercial airliner making scheduled non-stop flights *both ways* across the United States. It is designed for maximum operating profits and to bring the air traveler comforts never possible before.

These airlines are flying or have ordered the luxurious new Douglas DC-7

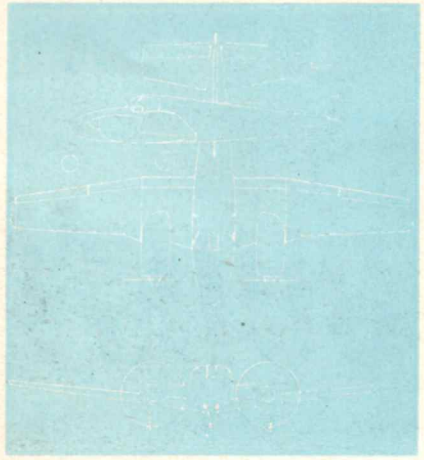
AMERICAN AIRLINES • DELTA-C&S AIR LINES
EASTERN AIR LINES • NATIONAL AIRLINES
PAN AMERICAN AIRWAYS • PANAGRA
UNITED AIR LINES

DOUGLAS

DOUGLAS *AS ALL OTHER AIRPLANES COMBINED*



TWIN BONANZA
B50



TYPE: Six-place TC 5A4

SPECIFICATIONS: Span 45 ft. 3⅞ in.; Length 31 ft. 6½ in.; Height 11 ft. 4 in.; Empty weight 3763 lb.; Gross weight 5500 lb.; Wing area 277 sq. ft.; Engine (2) Lycoming GO-435-C2, 260 hp at 3400 rpm at take-off; 240 hp at 3000 rpm normal rated; Fuel 135 gal., Electrical system 24-v d.c.; Propeller (2) Beechcraft B200-116 constant speed; Starter and Generator Eclipse-Pioneer; Carburetor Bendix; Oil Cooler Harrison; Tachometer Eclipse-Pioneer; Fuel cells U. S. Rubber Co.; Main tire 8.50 x 10; Nose tire 6.50 x 10.

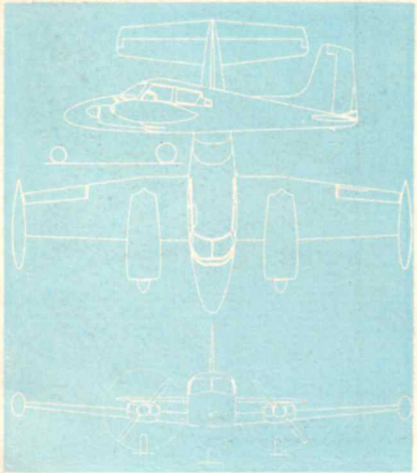
PERFORMANCE: Maximum speed 202.5 mph at 2500 ft.; 198 mph at sea level; Cruise at 65 percent power at 10,000 ft. 191 mph; Rate-of-climb 1650 fpm; Service ceiling 20,400 ft.; Stalling speed 59.2 mph; Range 935 miles; Takeoff over 50-ft. obstacle 1050 ft.; Land over 50-ft. obstacle 1137 ft.

REMARKS: Multi-purpose light transport, the Model 50 features high performance and good load-carrying capacity coupled with outstanding flying characteristics. It is being offered the military services as a trainer, photographic, ambulance or cargo airplane. Commercial production is also scheduled. Approximate price is $44,950.

CESSNA AIRCRAFT CO.

WICHITA, KANSAS

CESSNA
310



TYPE: Five-place TC

SPECIFICATIONS: Span 35 ft.; Length 27 ft.; Height 10 ft. 6 in.; Engine (2) Continental 0-470-B, 240 hp at 2600 rpm; Fuel capacity 100 gal. (two 50-gal. tip tanks); Empty weight 2850 lb.; Gross weight 4600 lb.

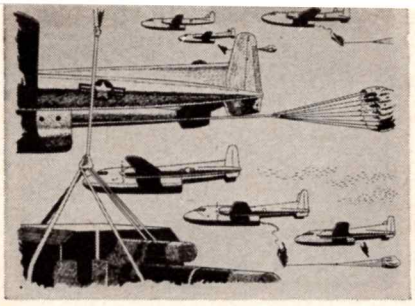
PERFORMANCE: Maximum speed 220 mph @ sea level; Cruising speed 205 @ 70% power @ 8000 ft.; Initial rate-of-climb 1700 fpm @ full gross weight; Service ceiling 20,000 ft. @ full gross weight; Single-engine ceiling 7500 ft. @ full gross weight; Range 1,000 mi. @ 50% power.

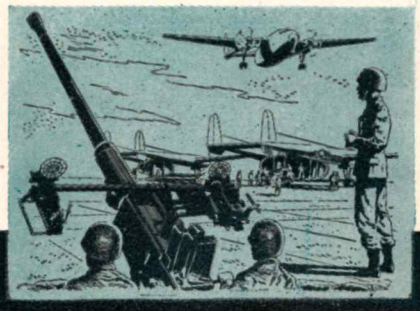
REMARKS: Unusual new twin Cessna features wingtip fuel tanks, exhaust augmenter tubes, fully-enclosed retractable tricycle gear, completely internal antennae. Now in quantity production, the new 310 is being offered at approximately $49,950 with the price guaranteed regardless of delivery date.

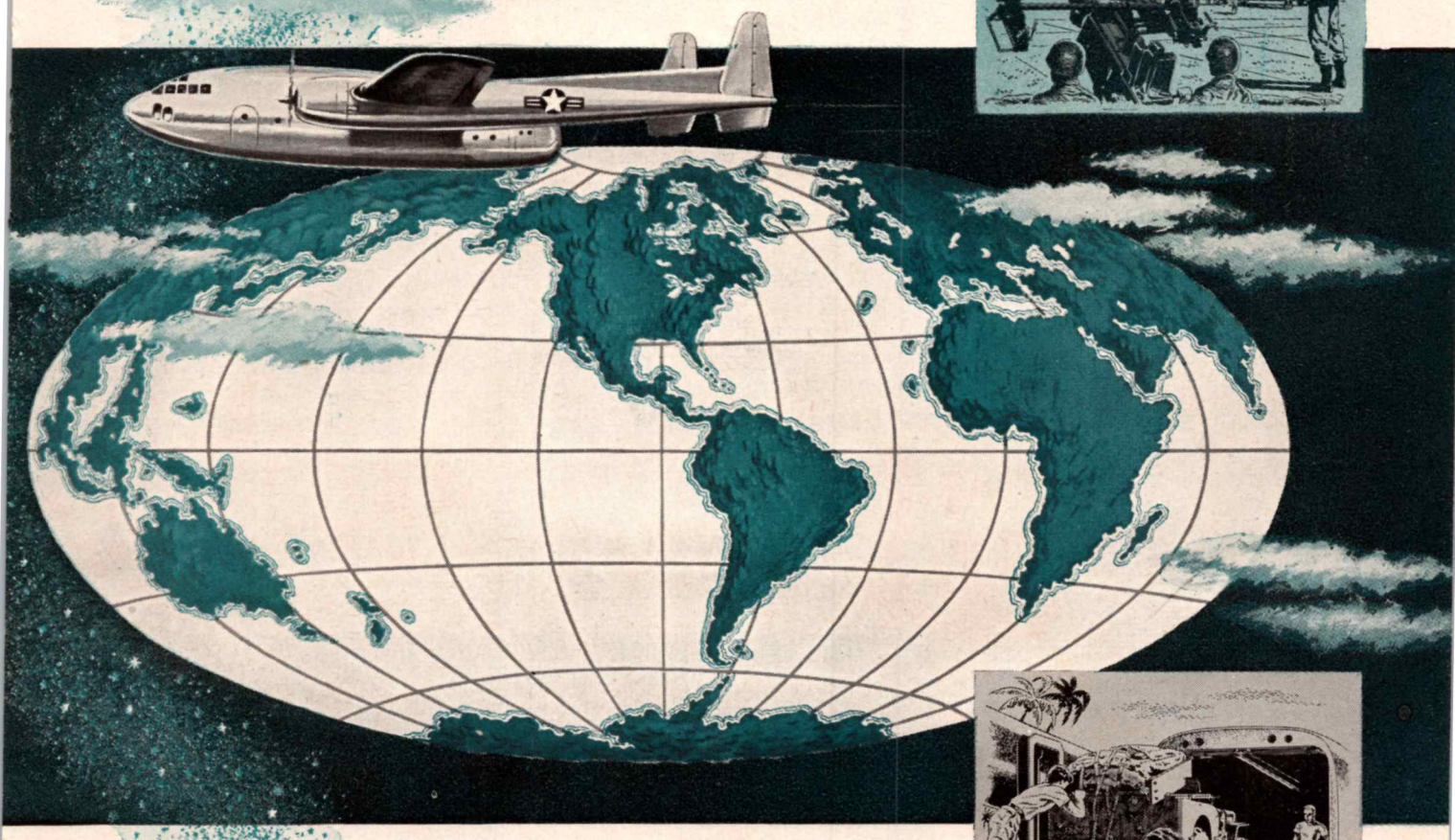
ANY MILITARY LOAD ANYWHERE

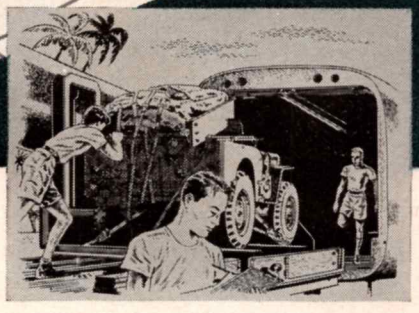
by

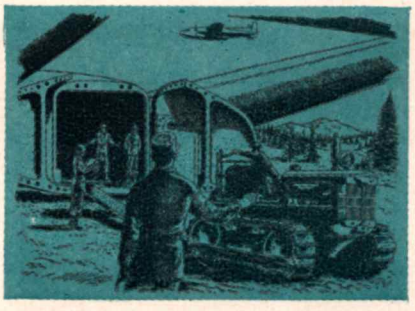
FLYING BOXCAR











Only airplane designed and built from stem to stern to handle big bulk military loads is the C-119 "Flying Boxcar". Fully equipped troops, guns, ammunition, road-building machinery, helicopters . . . these and countless other types of bulk military loads are shipped to every part of the world at an impressively low cost per ton mile delivered in the Fairchild C-119.

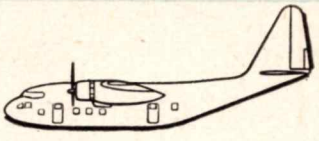
Designed especially to load, fly and unload big bulky cargoes, the "Flying Boxcar" is flying everywhere in the service of America's Armed Forces and those of the United Nations.

ENGINE AND AIRPLANE CORPORATION

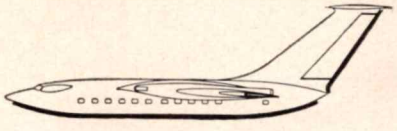
FAIRCHILD

Aircraft Division

HAGERSTOWN, MARYLAND



In production soon, the C-123 advance base military carrier.



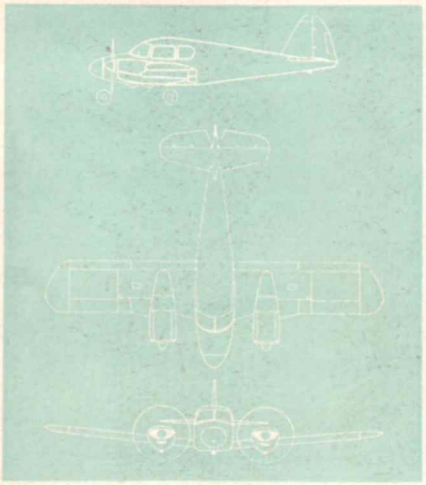
For the coming American jet age, the M-186 Jet Transport.

Engine Division Farmingdale, N. Y. • Guided Missiles Division Wyandanch, N. Y. • Speed Control Division Wickliffe, Ohio • Stratos Division Bay Shore, N. Y.

PIPER AIRCRAFT CORP.

LOCK HAVEN, PENNSYLVANIA

APACHE PA-23



TYPE: Four-place TC 1A10

SPECIFICATIONS: Span 37 ft.; Length 27 ft. 2 in.; Height 9 ft. 6 in.; Wing area 204 sq. ft.; Empty weight 2160 lb.; Gross weight 3500 lb.; Engine (2) Lycoming 0-320, 150 hp @ 2700 rpm; Fuel 72 gal.; Oil 4 gal.; Baggage 196 lb.

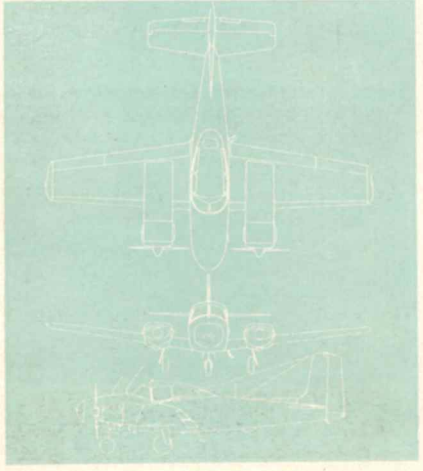
PERFORMANCE: Cruising speed more than 150 mph.

REMARKS: New Piper twin is all-metal design with short takeoff and slow landing speed for operation from small airports. It is capable of maintaining altitude at full gross weight on one engine. Now in quantity production.

TEMCO AIRCRAFT CORP.

DALLAS, TEXAS

RILEY TWIN NAVION



TYPE: Four place

SPECIFICATIONS: Span 33 ft. 4½ in.; Length 27 ft. 2 in.; Height 9 ft. 6½ in.; Empty weight 2300 lb.; Gross weight 3350 lb.; Engine (2) Lycoming 0-320, 150 hp at 2700 rpm takeoff; Wing area 178.3 sq. ft.; Fuel 60 gal.; Oil 4 gal.; Propeller Hartzell constant speed; Starter and generator Delco.

PERFORMANCE: Maximum speed 180 mph; Cruising speed 154 mph; Stalling speed with flaps 58 mph, without flaps 62 mph; Initial rate-of-climb 1400 fpm; Service ceiling 20,000 ft.; Range 800 mi.

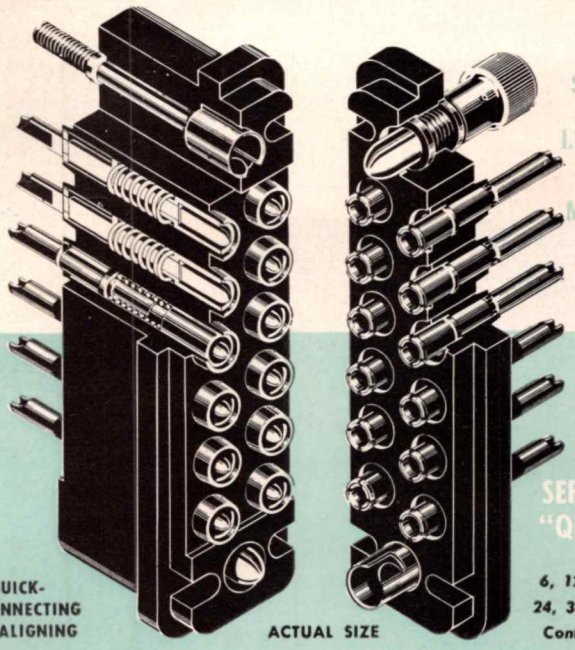
REMARKS: Standard North American or Ryan Navion redesigned and converted to twin-engine arrangement, the resulting product, now available from Temco, is a high-performance twin-engine airplane. Conversion is made using furnished Navion at $38,500 for standard but price varies according to details.

Winchester Electronics
INCORPORATED

MINIATURE and SUB-MINIATURE
ELECTRICAL CONNECTORS

The Accepted Standard
For QUALITY • COMPACTNESS • RUGGEDNESS
LIGHT WEIGHT • DEPENDABILITY

With components of precision manufacture . . . through strictest quality control standards . . . to assure long and dependable trouble-free service.



See them at the I.R.E. SHOW 388 Microwave Avenue

QUICK-DISCONNECTING SELF-ALIGNING

ACTUAL SIZE

SERIES "QRE"
6, 12, 18, 24, 34, 208 Contacts

SERIES "M" MINIATURE

ACTUAL SIZE

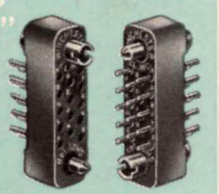
4, 5, 7, 9 Contacts

SERIES "HM" HERMETIC PLUG (Round Hole)

Used with "M" Receptacles

ACTUAL SIZE

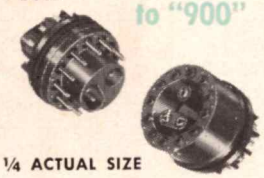
SERIES "SMRE" SUB-MINIATURE



7, 14, 20, 26, 29, 34 Contacts

ACTUAL SIZE

HEAVY DUTY TYPES "200" to "900"



¼ ACTUAL SIZE

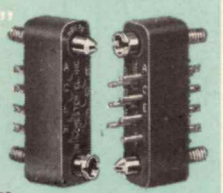
Used in "AN" Shells

SERIES "HMRE" HERMETIC PLUG

ACTUAL SIZE

Used with "MRE" Receptacles

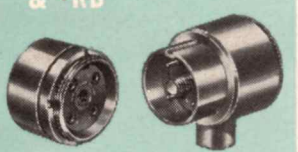
SERIES "MRE" MINIATURE



7, 8, 9, 14, 18, 20, 21, 26, 34, 41, 50 75 Contacts

⅔ ACTUAL SIZE

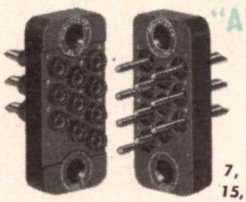
TYPES "RA" & "RB" WATERPROOF



4 or 9 Contacts

⅓ ACTUAL SIZE

AIRCRAFT SERIES "A"



7, 10, 15, 18 Contacts

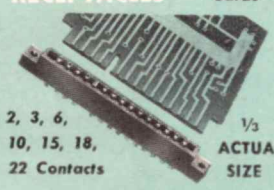
½ ACTUAL SIZE

TYPES "CR" & "CM"

½ ACTUAL SIZE

MINIATURE PRESSURE-TIGHT

SERIES "K" RECEPTACLES *Used with Printed Circuit Cards*



2, 3, 6, 10, 15, 18, 22 Contacts

⅓ ACTUAL SIZE

Always a pioneer in this field, Winchester Electronics initially established the use of mineral-filled melamine for insert bodies and gold plating over silver plating on contacts, having long realized their values. Today, these principles of design and manufacture are widely accepted in industry as those necessary to meet quality requirements.

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PRECISION MACHINED CONTACTS: *Pins from brass bar and sockets from spring temper phosphor bronze bar are gold plated over silver for consistent low contact resistance, prevention of corrosion and ease of soldering.*

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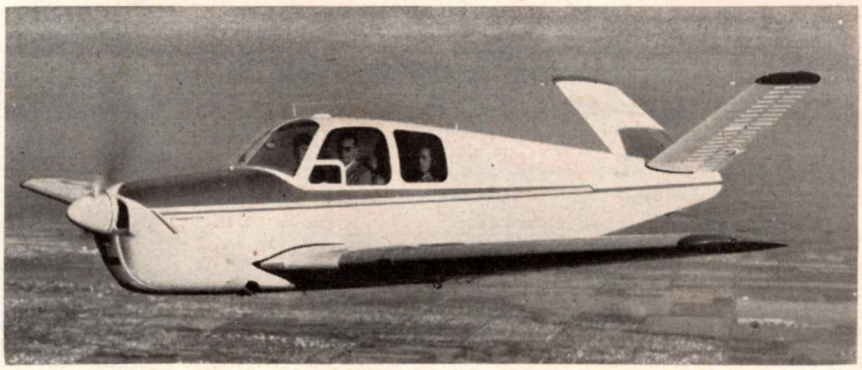
PERSONAL

BEECH AIRCRAFT CORP.

WICHITA, KANSAS

BONANZA
E35



TYPE: Four-place TC 777

SPECIFICATIONS: Span 32 ft. 10 in.; Length 25 ft. 2 in.; Height 6 ft. 6½ in.; Empty weight 1675 lb.; Gross weight 2725 lb.; Wing area 177.6 sq. ft.; Engine Continental E-185-11, 205 hp at 2600 rpm at takeoff, 185 hp at 2300 rpm at sea level normal rated; Propeller Beech controlled continuously variable pitch 7 ft. 4 in.; Starter Eclipse E-80; Fuel 39 gal. standard, 59 gal. maximum;

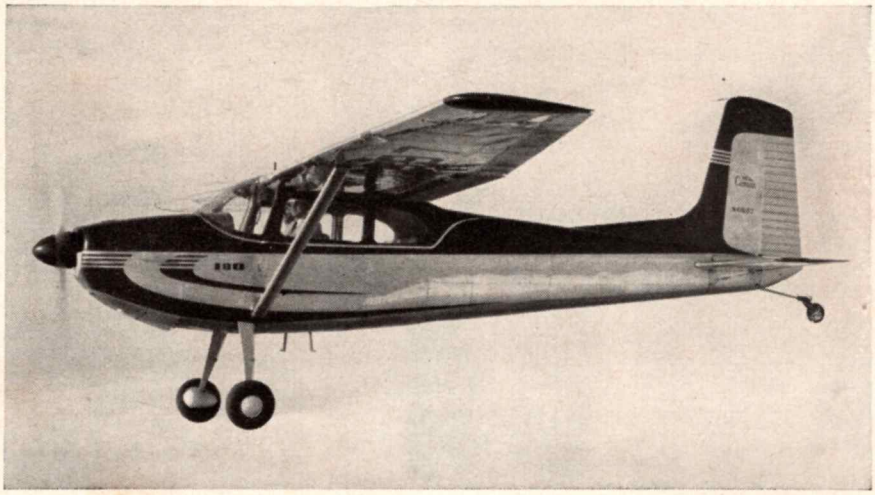
PERFORMANCE: Maximum speed 190 mph at sea level; Cruising speed at 65 percent power 175 mph at 8,000 ft.; Rate-of-climb 1100 fpm; Service ceiling 18,000 ft.; Stalling speed 55 mph; Range 775 miles on standard fuel, 1180 on 59 gal. fuel supply; Takeoff in 10 mph wind 525 ft.; Landing in 10 mph wind 227 ft.

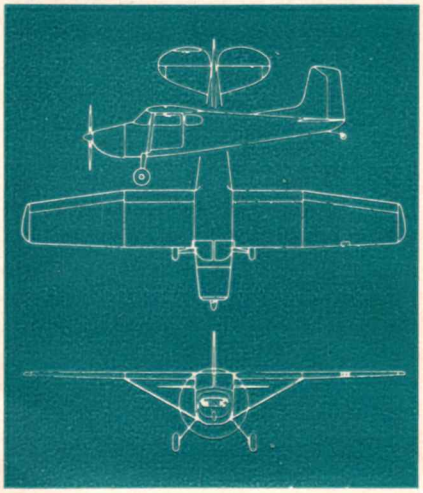
REMARKS: New E35 model features optional engine installation with 225 hp Continental E-225-8 engine providing 9 mph added speed, 200 fpm added rate-of-climb and 1,000 ft. higher ceiling. New 1954 model has new aileron trim control, added passenger room, tinted windows, added leather trim and carpeting. Approximate price $18,990 for standard and $19,990 for 225-hp model.

CESSNA AIRCRAFT CO.

WICHITA, KANSAS

CESSNA
180





TYPE: Four-place TC 5A6

SPECIFICATIONS: Span 36 ft.; Length 26 ft.; Height 7 ft. 6 in. Empty weight 1480 lb.; Gross weight 2550 lb. Engine Continental 0-470-A, 225 hp at 2600 rpm. Propeller Martzel 7 ft. 4 in. dia. Fuel 60 gal.

PERFORMANCE: Maximum speed 165 mph; Cruising speed 150 mph; Stalling speed 64 mph. Service ceiling 19,800 ft. Rate-of-climb 1150 fpm. Endurance 4½ hours.

REMARKS: New model 180 features added sound proofing and engine changes reducing noise, new outside baggage compartment access, sloping map compartment, adjustable horizontal stabilizer and numerous internal refinements. New model, only introduced last year, is in quantity production at $12,950.

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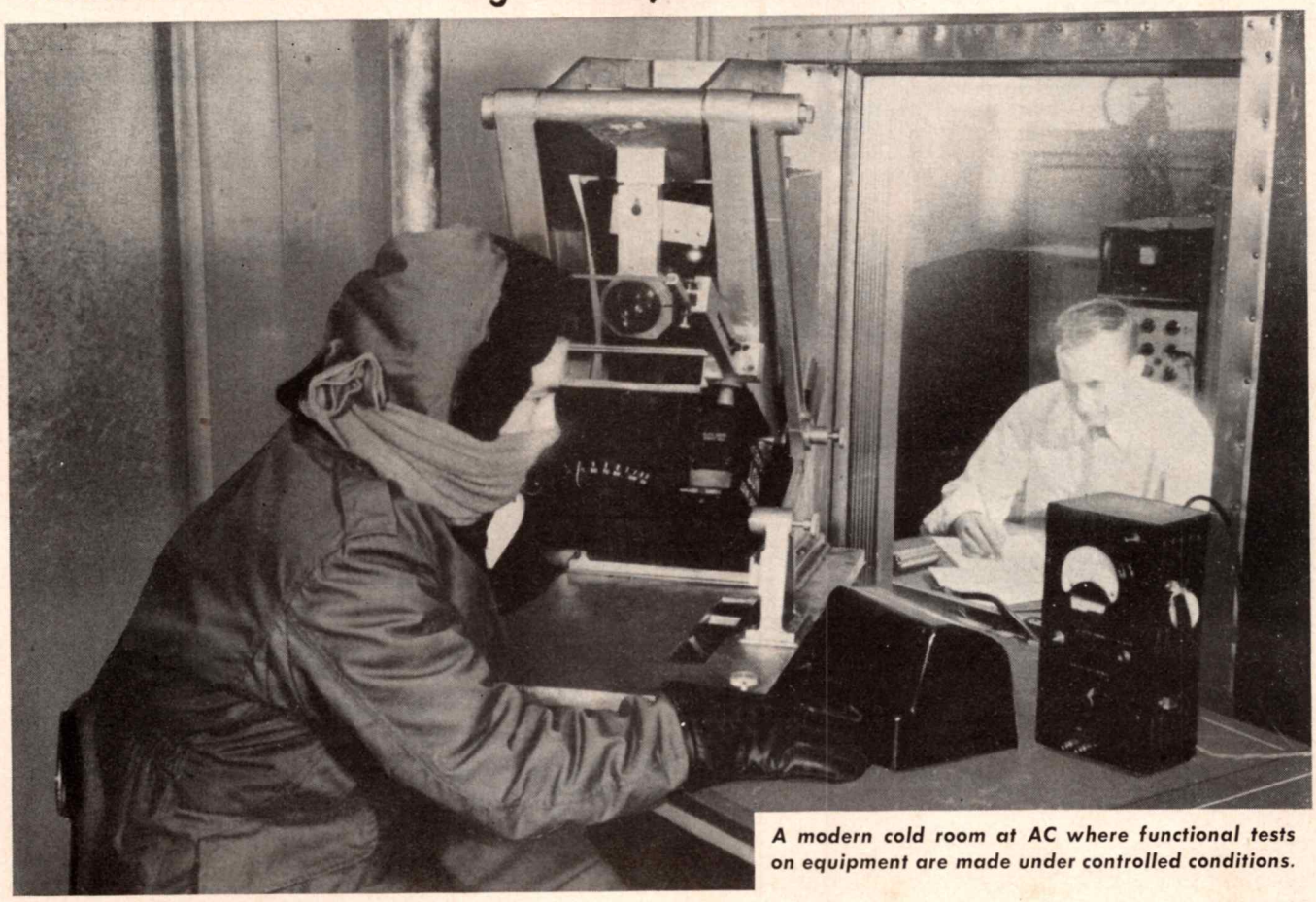

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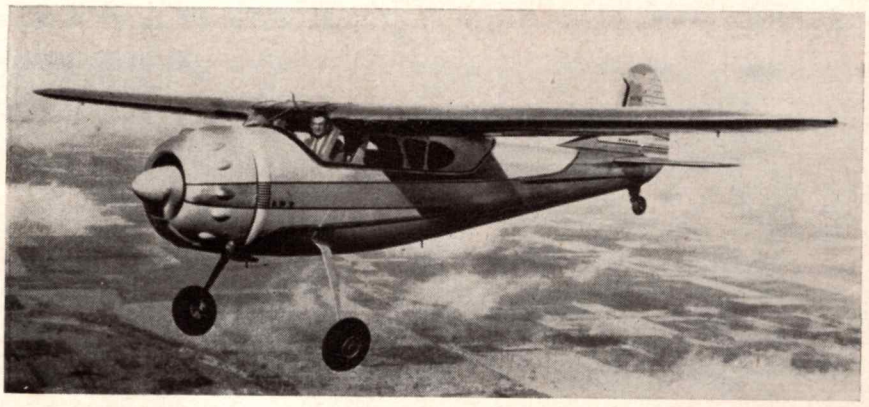
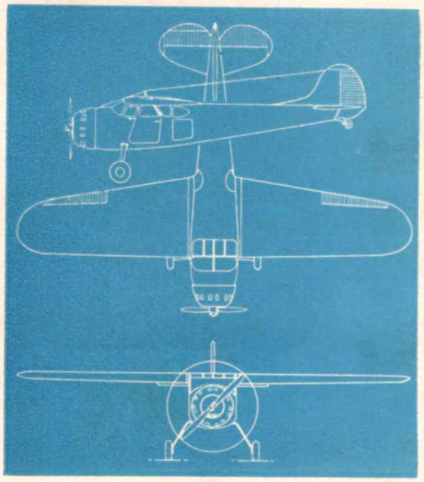
CESSNA 195





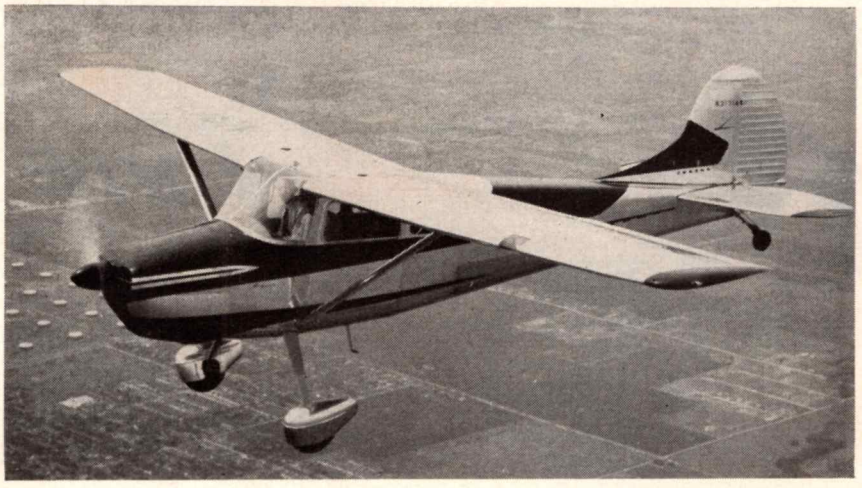
TYPE: Five-place TC 790

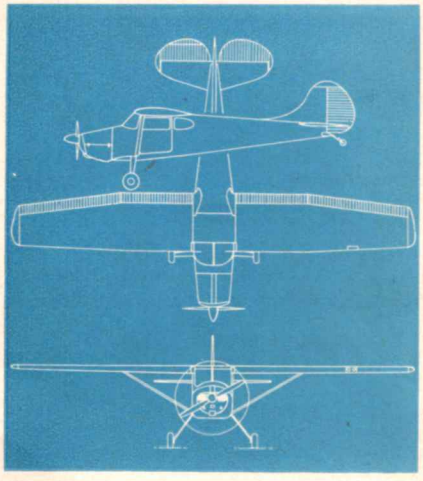
SPECIFICATIONS: Span 36 ft. 2 in.; Length 27 ft. 1 in.; Height 8 ft.; Wing area 218.125 sq. ft.; Engine Jacobs R-755-A2, 300 hp @ 2200 rpm at takeoff, 225 hp at 2000 rpm cruise; Empty weight 2030 lb.; Gross weight 3350 lb.; Propeller Hamilton Standard constant speed; Main tire 6.50 x 10; Electrical system 12-v d.c.; Fuel 80 gal.; Baggage compartment 85 cu. ft. 220 lb.

PERFORMANCE: Maximum speed 175 mph at 7000 ft.; Cruising speed 163 mph; Landing speed 62.5 mph; Rate-of-climb 1140 gpm; Service ceiling 17,600 ft.; Range 750 miles.

REMARKS: Certificated for floats and skis, equipped with hinged engine mount and throw-over control column, Model 195 seats two in front seats and either two or three in rear seats. Rear seats are removed by four bolts to provide 85 cu. ft. of cargo space. Approximate price $13,250.

CESSNA 170





SPECIFICATIONS: Span 36 ft.; Length 25 ft.; Height 6 ft. 7 in.; Wing area 175 sq. ft.; Engine Continental C-145-2, 145 hp at 2700 rpm at takeoff, 105 hp at 2410 rpm cruising; Propeller Sensenich 6 ft. 1 in.; Empty Weight 1185 lb.; Gross Weight 2200 lb.; Main tire 6.50 x 6.
PERFORMANCE: Maximum speed 140 mph; Cruising speed 120 mph; Stalling speed 53 mph; Rate-of-climb 690 fpm; Service ceiling 15,500 ft.; Range 640 miles.

REMARKS: New Model 170 features price reduction of $155 over 1953 model, now lists at $8295. Current model features removable rear seat for cargo, recessed panel mountings for eight additional instruments plus two radios without reduction in may compartment space.

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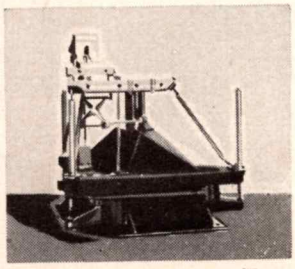

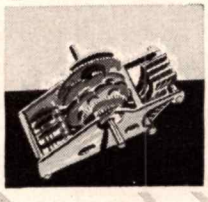

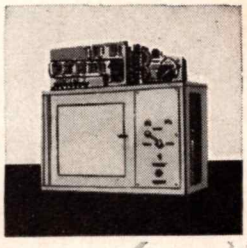

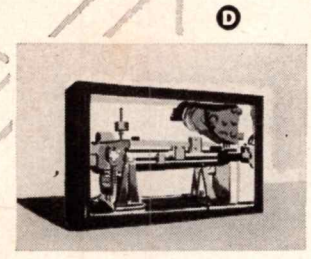

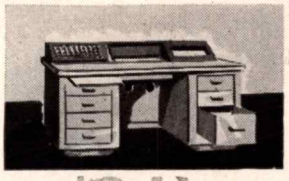

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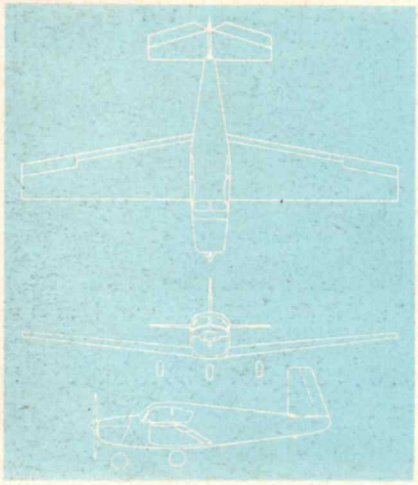
MODEL 20



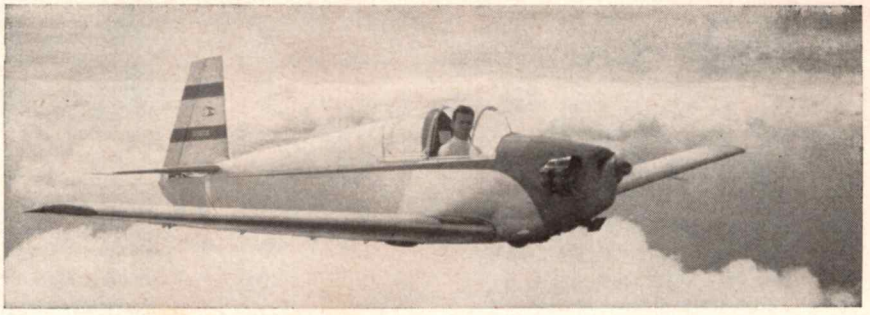
TYPE: Four-place

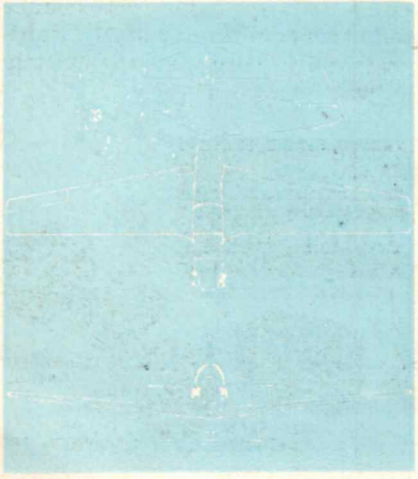
SPECIFICATIONS: Span 35 ft.; Length 23 ft. 2 in.; Height 8 ft. 3 in.; Wing area 166.9 sq. ft.; Empty weight 1049 lb.; Gross weight 2000 lb.; Engine Continental C145-2H, 145 hp @ 2700 rpm; Propeller Sensenich CS-3F; Fuel 180 gal.

PERFORMANCE: Maximum speed 176 mph; Cruise 161 mph @ 8000 ft.; Landing speed 45 mph; Rate-of-climb 1260 fpm; Service ceiling 21,900 ft.; Range 718 mi.

REMARKS: Another super-economical Mooney design, this new four-placer employs an NACA laminar flow wing profile. It is stressed to take increasingly powerful engines and to grow in luxury and performance through the years.

MITE M-18L



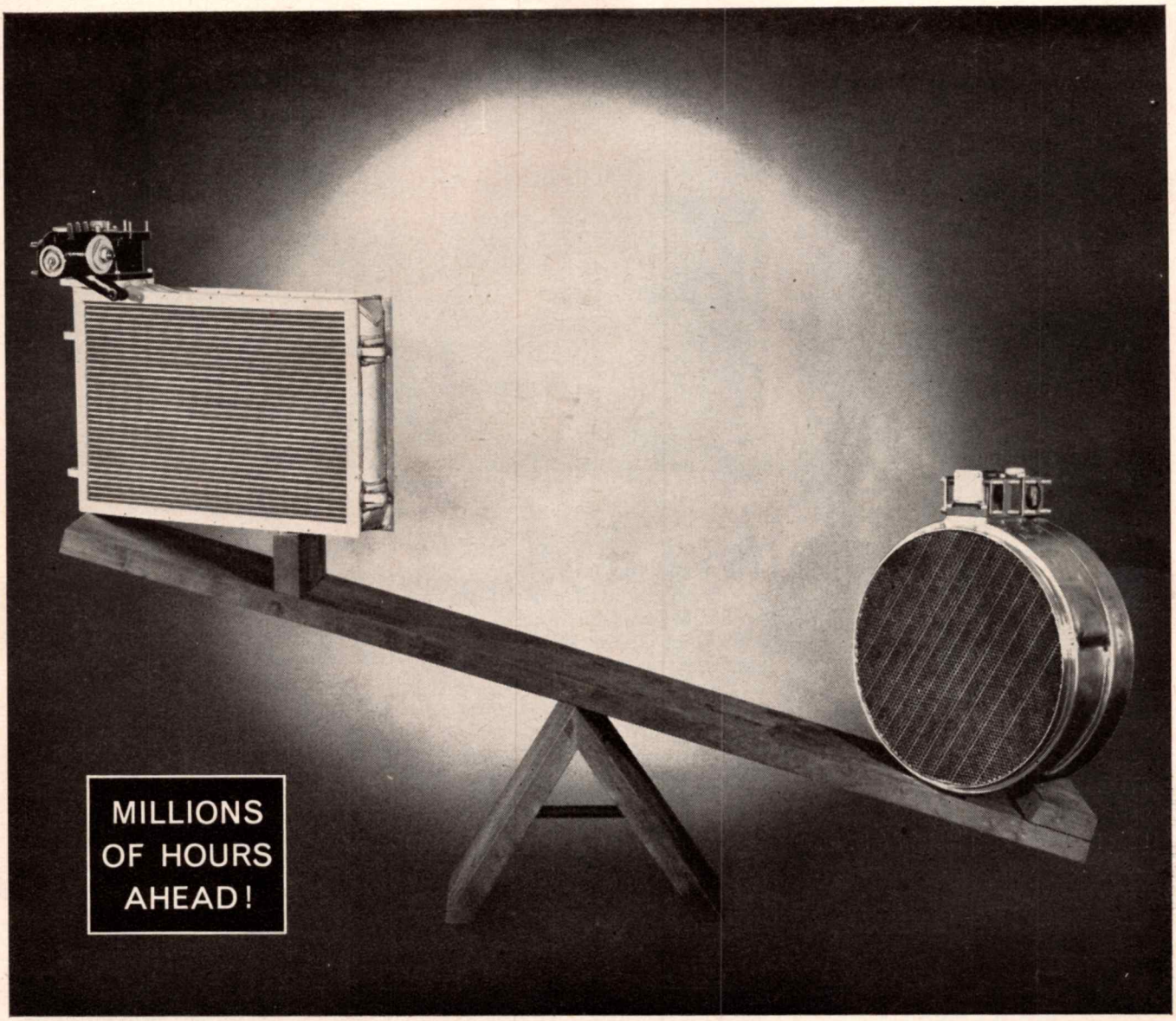


TYPE: Single-seat TC 803

SPECIFICATIONS: Span 26 ft. 10½ in.; Length 17 ft. 7 in.; Height 6 ft. 2 in.; Wing area 95 sq. ft.; Empty weight 500 lb.; Gross weight 850 lb.; Engine Lycoming 0-145-B2, 65 hp at 2550 rpm at takeoff, 49 hp at 2300 rpm cruise power; Propeller Flottorp 63L60; Main tire 4.00 x 4; Fuel 16 gal.; Baggage 40 lb.

PERFORMANCE: Maximum speed 138 mph; Cruising speed 125 mph at 10,000 ft.; Landing speed 43 mph; Rate-of-climb 1090 fpm; Service ceiling 19,400 ft.; Takeoff over 50-ft. obstacle 525 ft.; Land over 50-ft. obstacle 860 ft.; Range 500 miles.

REMARKS: Single-seat Mite offers lowest possible flying costs at less than a penny a mile. Price approximately $2600.



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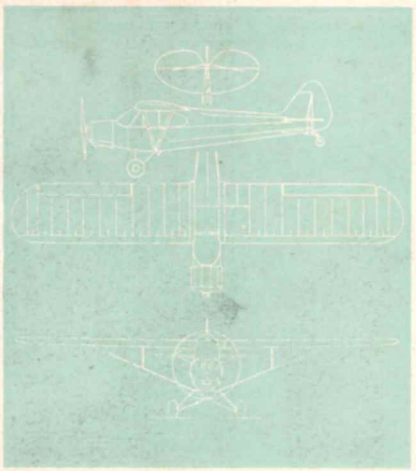
SUPER CUB PA-18



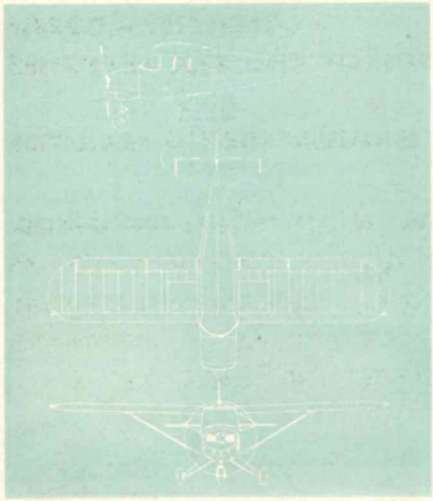
TYPE: Two-place TC 1A2

SPECIFICATIONS: Span 35 ft. 4 in.; Length 22 ft. 6 in.; Height 6 ft. 8 in.; Wing area 178.5 sq. ft.; Empty weight 895 lb.; Gross weight 1500 lb.; Engine Lycoming 0-290-D2, 135 hp at 2600 rpm at takeoff; 81 hp at 2350 rpm cruise power; Propeller Sensenich M76M-2; Main tire 8.00 x 4, Tail tire 6.00 x 2; Battery Reading; Lights Grimes; Radio GE; Fuel 18 gal.

PERFORMANCE: Maximum speed 127 mph; Cruising speed 112 mph; Landing speed 38 mph; Rate-of-climb 1050 fpm; Service ceiling 20,500 ft.; Range 500 miles; Takeoff run 500 ft.; Landing run 300 ft.

REMARKS: Model 105, outlined above, differs from standard Model 95 in increased power and performance. Famed Super Cub in latest dress provides an altitude of 1000 ft. over the end of a 3000 ft. runway from a standing start. Available on floats, four1wheel rough-field landing gear or conventional low-pressure tire gear. Special PA-18-A agricultural model available.

TRI-PACER PA-22



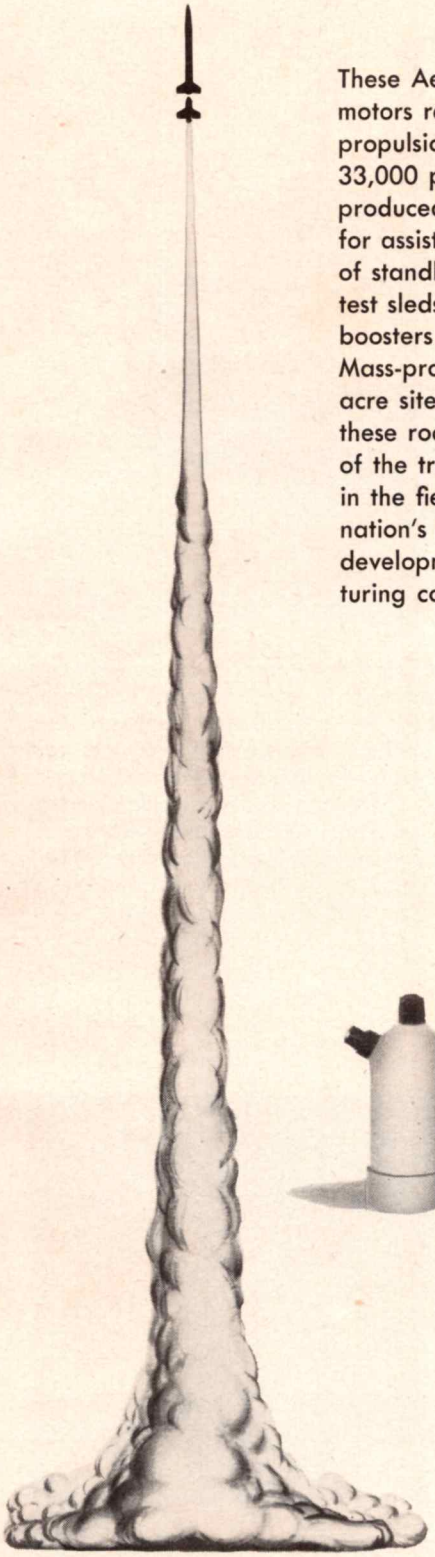
TYPE: Four-place TC 1A6

SPECIFICATIONS: Span 29 ft. 4 in.; Length 20 ft. 5 in.; Height 8 ft. 4 in.; Wing area 147.5 sq. ft.; Empty weight 1040 lb.; Gross weight 1950 lb.; Engine Lycoming 0-290-D2, 135 hp at 2600 rpm at takeoff; Propeller 2600 rpm normal rated; Propeller Aeromatic or Sensenich controllable pitch, 6 ft. 2 in.; Baggage capacity 100 lb.; Fuel 36 gal.

PERFORMANCE: Maximum speed 137 mph; Cruising speed 132 mph at 7000 ft. on 75 percent power; Stalling speed 48 mph; Best rate-of-climb speed 84 mph; Rate-of-climb 800 fpm; Range 580 miles; Service ceiling 15,000 ft.; Absolute ceiling 17,500 ft.; Fuel consumption 7.7 gal/hr.

REMARKS: Standard Pacer with tricycle landing gear, nosewheel costs only 2 mph in speed, nothing in other performance factors. Simplified controls permit student solo in single day of instruction.

REGULAR OR KING SIZE?



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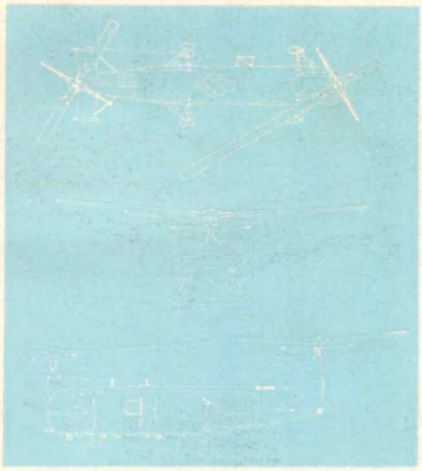
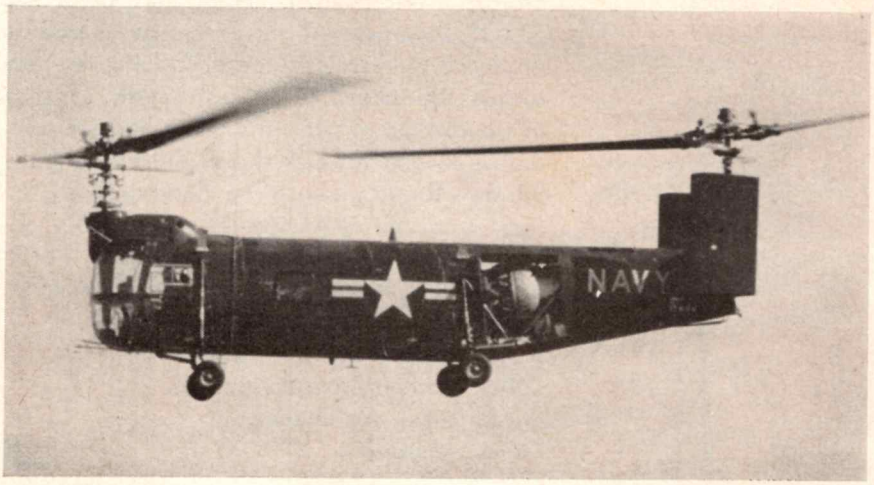
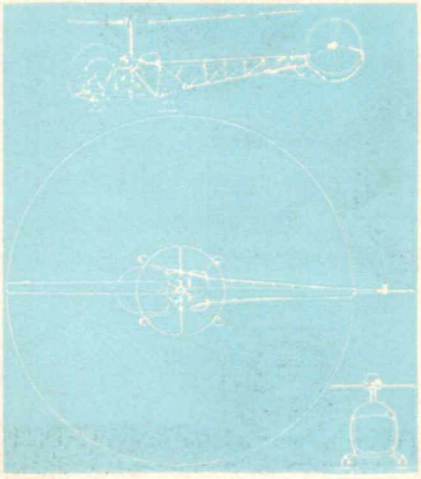
BELL HSL-1

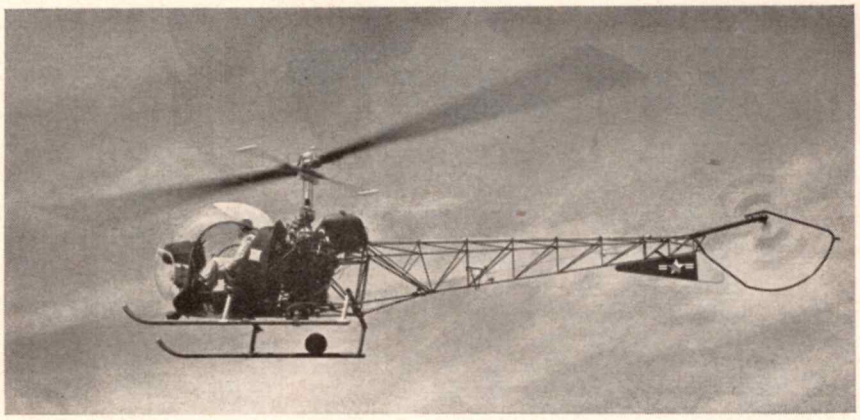




TYPE: ASW combat
REMARKS: First helicopter specifically designed for anti-submarine warfare, the new design is Bell's first departure from the single main rotor configuration. The HSL-1 rotor system incorporates standard Bell rigid two-blade rotor and automatic stabilizing system. Power is provided by a Pratt & Whitney R-2800 Double Wasp engine normally rated at 2100 hp but limited to 1900 hp in the HSL. Engine is mounted in conventional position in aft fuselage. The rotors can be folded, the forward rotor blades folding rearward, the rear blades folding forward to comprise a compact unit for carrier stowage. Stabilizing fins are provided for directional stability in highspeed flight. HSL-1 is in quantity production at Bell's Fort Worth, Tex. plant.

BELL H-13G



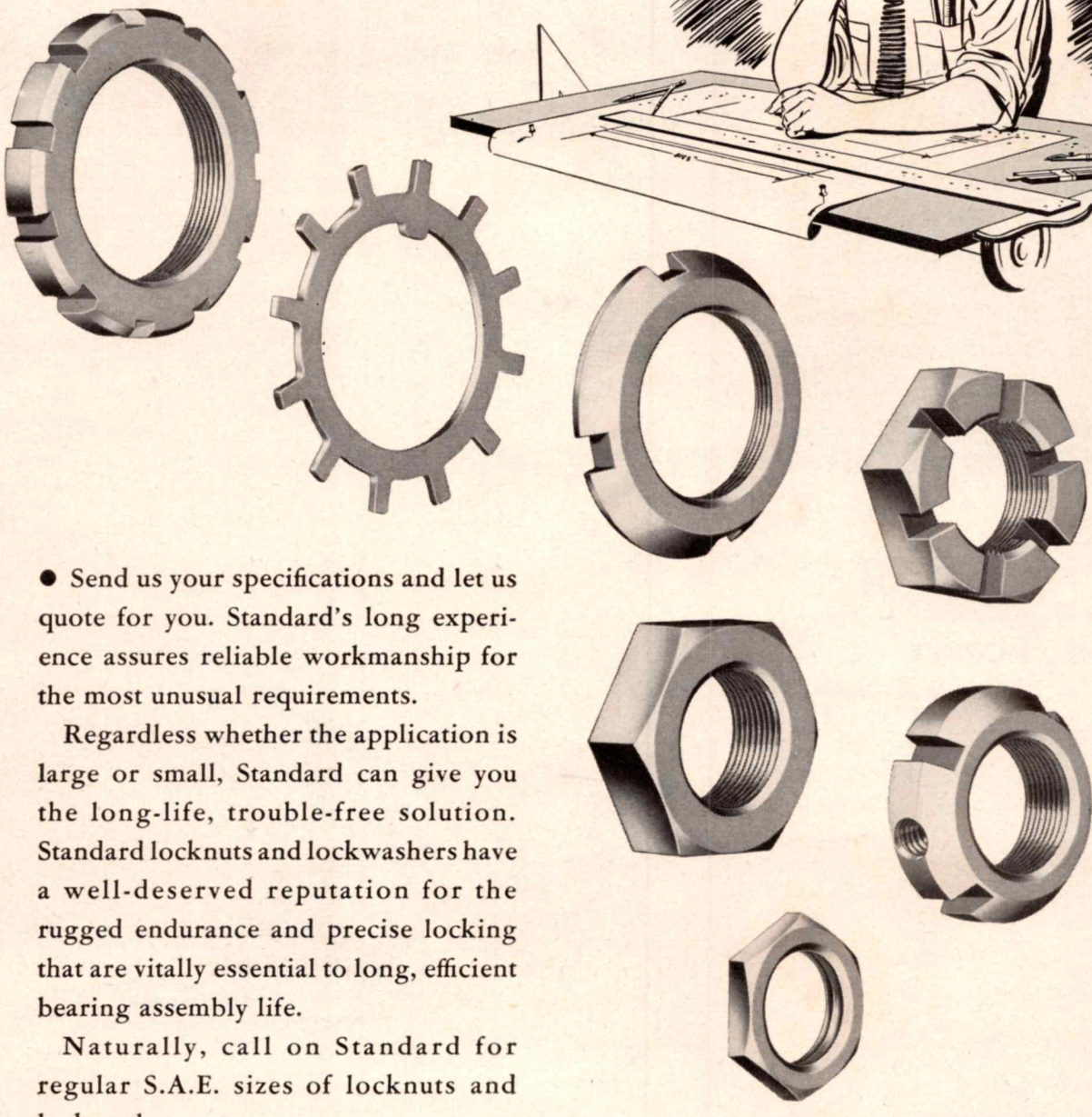


TYPE: General purpose
SPECIFICATIONS: Main rotor dia. 35 ft. 1½ in.; Anti-torque rotor dia. 5 ft. 9 in.; Length 41 ft. 5 in.; Height 9 ft. 4 in.; Engine Franklin 0-335-5, 200 hp @ 3100 rpm; Empty weight 1409 lb.; Gross weight 2350 lb.; Overload gross weight 2478 lb.; Fuel 40 gal.; Oil 2 gal.

PERFORMANCE: Maximum speed 90 mph @ s.l.; Cruise 77 mph @ s.l.; Rate-of-climb design gross weight 800 fpm.; Service ceiling design gross weight 10,900 ft.; Range 215 mi.

REMARKS: Standard Bell design available as commercial Model 47G. In service with Navy as HTL-6 and U.S. Army as H-13G equipped for rescue, 5-pl. evacuation, 3-pl. liaison, 2-pl. instrument training, 4-pl. assault and light cargo missions.

SPECIAL APPLICATION PROBLEM?



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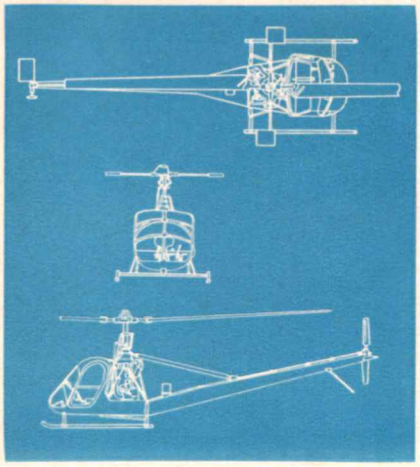
HILLER HELICOPTERS

PALO ALTO, CALIFORNIA

HILLER H-23B



TYPE: Utility

SPECIFICATIONS: Main rotor dia. 35 ft.; Antitorque rotor dia. 5 ft. 6 in.; length 38 ft. 7½ in.; Height 9 ft. 7½ in.; Empty weight 1705 lb. (H-23B), 1754 lb. (HTE-2); Gross weight 2451 lb. (H-23B), 2549 lb. (HTE-2); Engine Franklin 0-335-6, 200 hp @ 3100 rpm @ sea level; Fuel 28 gal.

PERFORMANCE: Maximum speed at sea level 84 mph; cruising speed at sea level 70 mph; Initial rate-of-climb 770 fpm; Hovering ceiling 3200 rt.; Service ceiling 9,400 ft.; Range 135 mi.

REMARKS: Hiller 360 is commercial model, H-23B is Army model, HTE-2 is Navy model. A number are in service with foreign governments, including the British. Earlier civil models are in service throughout the world.

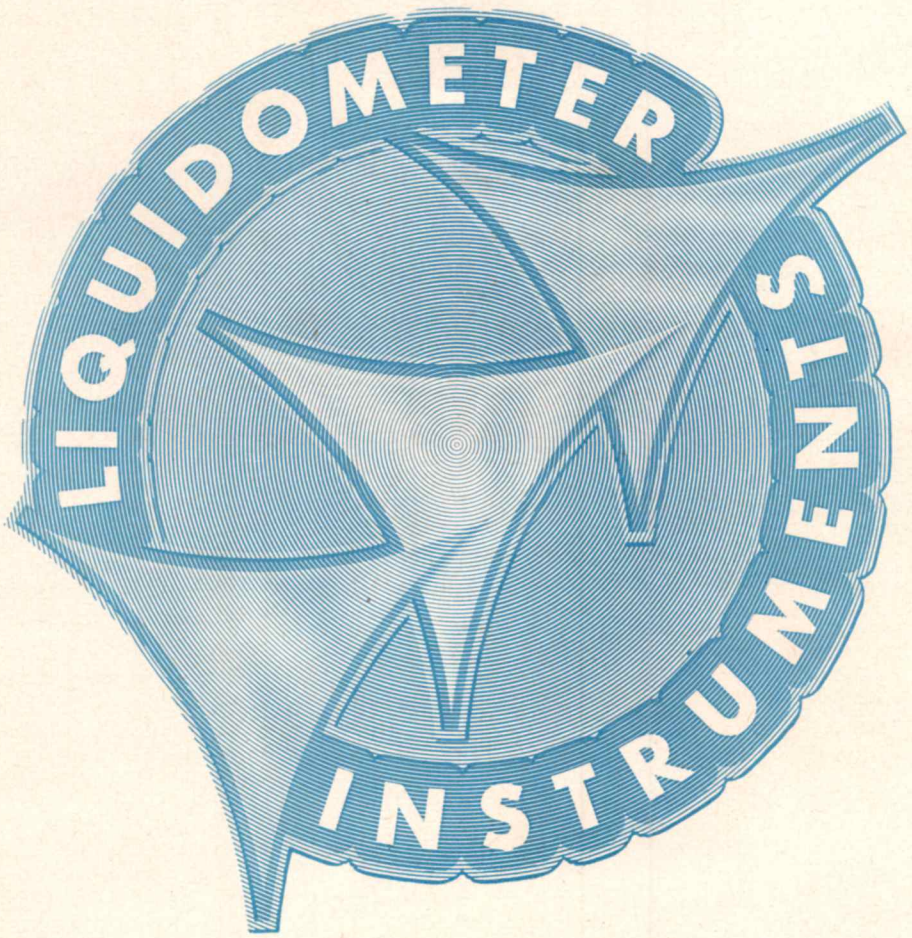
HORNET YHJ-1

TYPE: Utility

SPECIFICATIONS: Rotor dia. 23 ft.; Height 8 ft.; Empty weight 360 lb.; Gross weight 960 lb.; Engine: two Hiller 8RJ2B ramjet units, 35 lb. static thrust ea.; Fuel capacity 52 gal.

PERFORMANCE: Maximum speed 80 mph; Cruising speed 70 mph; Initial rate-of-climb 830 fpm; Hovering ceiling in ground effect 4000 ft.; Absolute ceiling 12,000 ft.; Range still air 31 mi.

REMARKS: The Navy has ordered several YHJ-1 for USN and USMC evaluation and the Air Force several YH-32 for study of the ramjet helicopter principle and performance in actual service. Services will determine suitability of the twoplace jet machine for lightweight reconnaissance and liaison work. Small anti-torque rotor is gear-driven from main rotor. Hiller is studying commercial market for the Hornet at $5,000 ea., lowest helicopter price yet announced.



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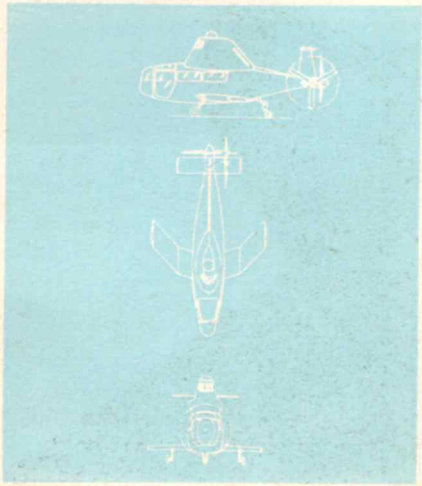
POTTSTOWN, PENNSYLVANIA

MODEL 104



TYPE: Experimental

SPECIFICATIONS: Rotor dia. 36 ft.; Fuselage length 22 ft.; Height 10 ft. 10 in.; Empty weight 2350 lb.; Gross weight 3475 lb.; Engine Jacobs R-755EH, 350 hp.; Fuel 35 gal.

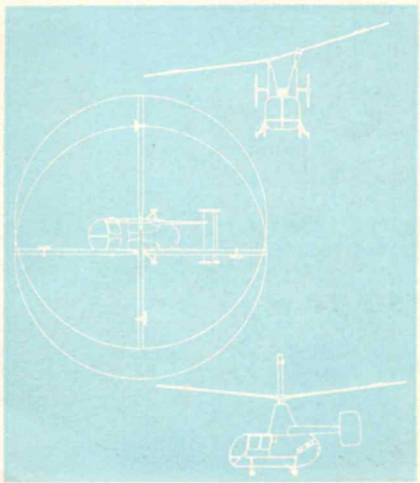
PERFORMANCE: Maximum speed 170 mph; Cruising speed 150 mph; Rate-of-climb (vertical) 700 fpm; Range 260 mi.

REMARKS: Heart of the new machine is the Jacobs engine-transmission unit which is factory built and packaged as a single unit. The 104 has convertiplane characteristics with the anti-torque rotor and pusher propeller intermeshing at a 90 deg. angle. The propeller can be placed in high pitch and utilize most of the engine's power for forward flight. The rotor blades are made from 61ST aluminum alloy extrusion. Swept wing provides up to 30 percent of the total lift and, with collective pitch control locked, the machine is operated with cyclic stick and rudder pedals like a normal airplane.

KAMAN AIRCRAFT CORP.

WINDSOR LOCKS, CONNECTICUT

KAMAN HOK-1

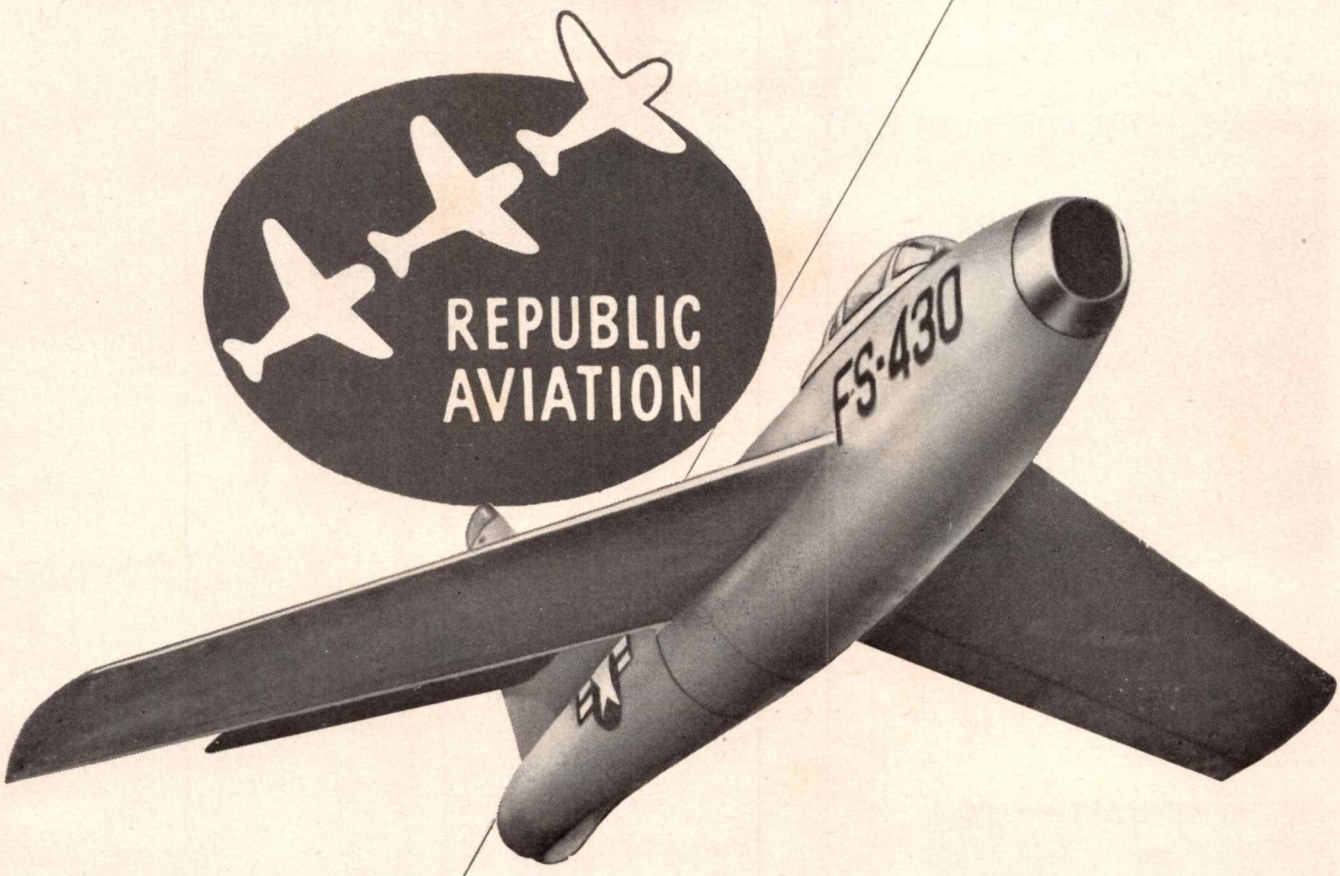


TYPE: Observation

SPECIFICATIONS: Rotor dia. 47 ft.; Length 22 ft. 7 in.; Height 12 ft. 6 in.; Engine Continental R-975-40, 525 hp @ 2600 rpm. Tread (front) 64½ in., (rear) 90 in.

REMARKS: General utility design can be readily converted to ambulance version carrying two litter patients and one medical attendant or an additional ambulatory patient, in addition to the pilot. The HOK-1 uses the patented Kaman servo-flap for blade control. The twin vertical fins provide directional stability in high speed flight. Stabilizer controllable from collective pitch control.

SYMBOL



Behind this symbol are 30,000 men and women with countless skills, trades and professions whose ingenuity is so greatly contributing to our nation's production resources. They are the builders of today's F-84F ***THUNDERSTREAK*** *fighter-bombers for our Air Force and for the air arms of the friendly allies banded together in NATO. ➢➢ The scope of our work is world wide even though most of us live on Long Island or within a 50 mile radius. Among other things we come and go in 10,000 automobiles. We earn an average of $2,500,000 weekly with which we support our families and our 230 individual communities by payments of more than $10,000,000 annually in Federal, State and local taxes (this is in addition to the millions paid in taxes by Republic itself). ➢➢ We also buy $631,000 worth of defense bonds each month. We use material and equipment supplied by 2,126 firms in the United States which totalled over $385,000,000 last year. This helps provide employment for another 300,000 of our fellow Americans. ➢➢ The aircraft manufacturing industry has become an integral part of the national economy as well as a vital link in the pattern of peace for the defense of our Country and the free world.*

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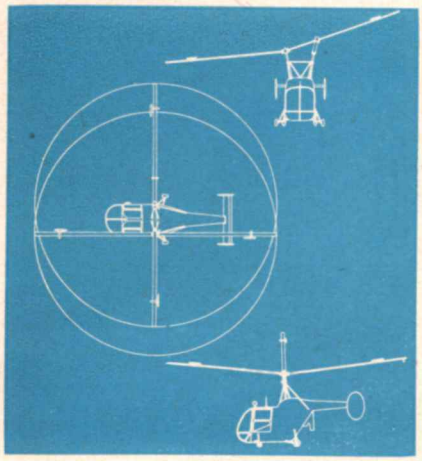
KAMAN HTK-1



TYPE: Trainer

SPECIFICATIONS: Rotor dia. 40 ft.; Fuselage length 20 ft. 6½ in.; Height 12 ft. 5 in.; Empty weight 1750 lb.; Gross weight 2500 lb.; Engine Lycoming 0-435-4, 250 hp at 3400 rpm.; Fuel 40 gal.

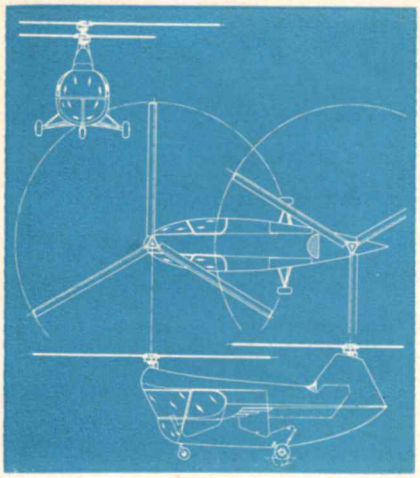
PERFORMANCE: Maximum speed 75 mph; Cruising speed 70 mph; Vertical rate-of-climb 700 fpm; Service ceiling 10,000 ft.; Range 194 mi.

REMARKS: Features Kaman-developed servo tab control of rotor blade angle. Side-by-side seating facilitates student training. Intermeshing rotors permit lateral disposition of dual rotors without cantilever mountings. Initial production quantity completed August 1953.

McCULLOCH MOTORS CORP.

LOS ANGELES, CALIFORNIA

YH-30



TYPE: Liaison

SPECIFICATIONS: Main rotor dia. 23 ft.; Length 32 ft. 5 in.; Height 9 ft. 3 in.; Empty weight 1600 lb.; Gross weight 2300 lb.; Engine Franklin 6A4-200-C6, 200 hp.; Fuel 35 gal.

PERFORMANCE: Maximum speed 90 mph; Cruising speed 85 mph; Service ceiling 10,000 ft.; Vertical rate-of-climb 800 fpm; Range 200 mi.

REMARKS: Tandem rotor design is now undergoing evaluation.

McDONNELL AIRCRAFT CORP.

ST. LOUIS, MISSOURI

McDONNELL XV-1

TYPE: Convertiplane

SPECIFICATIONS: Span 26 ft.; Length 30 ft.; Height 10 ft.; Engine Continental, 500 hp. plus three McDonnell pressure jets.

REMARKS: First U.S. military convertiplane, new XV-1 uses principle of the "unloaded rotor" in which rotor provides vertical climb but unloads onto the fixed wing as high forward speed is attained. Rotor is driven by three McDonnell-developed pressure jet units at the tips. The Continental engine, mounted in the aft fuselage, supplies compressed air to the jet units during vertical flight and shaft power to the pusher propeller for forward flight. The XV-1 carries three passengers or two litter patients and attendant.

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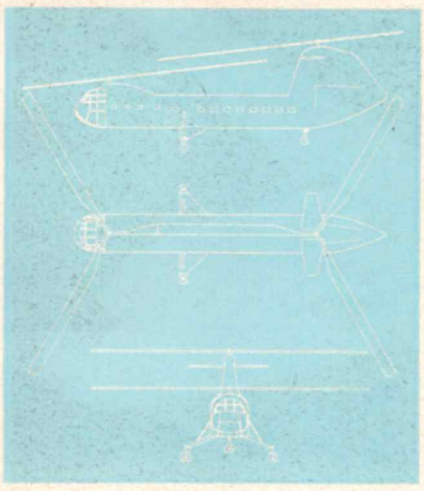
TRANSPORTER YH-16

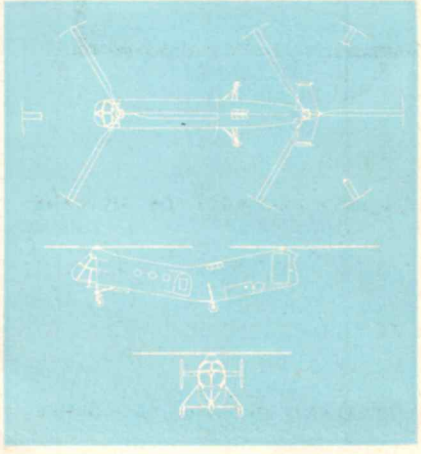


TYPE: Transport

SPECIFICATIONS: Rotor dia. 82 ft.; Fuselage length 77 ft. 10 in.; Overall length 113 ft.; Height 31 ft. 1 in.; Gross weight more than 30,000 lb.; Engine (2) Pratt & Whitney R-2180-11, 1650 hp.

REMARKS: Engine is mounted directly under each rotor but in emergency either engine can drive both rotors. Giant machine accommodates 40 troops or 32 litter patients or 4 tons of cargo. Tail ramp permits loading of three jeeps, other cargo. Side doors are used for troop loading. YH-16A version is powered by two Allison T56 gas turbine engines. Earlier plans for detachable pack now abandoned.

WORK HORSE H-21C



TYPE: Assault transport

SPECIFICATIONS: Rotor dia. 44 ft.; Fuselage length 52 ft. 6 in.; Overall length 65 ft. 10 in.; Height 16 ft.; Empty weight 8479 lb.; Gross weight 13,238 lb. normal, 15,061 lb. max.; Engine Wright R-1820-103, 1425 hp at 2800 rpm; Cabin 20 ft. long, 5 ft. 6 in. wide, 5 ft. 6 in. high, 615 cu. ft. volume; Fuel 300 gal. internal, two 255-gal. external tanks for ferry missions.

PERFORMANCE: Maximum speed 132 mph at sea level; Cruise 98 mph at sea level; Vertical rate-of-climb 960 fpm; Service ceiling 9650 ft.; Range 966 mi.

REMARKS: Quantity production for U.S. Army as 22-place assault transport and H-21B version for Air Force. Landing gear convertible ot floatation gear for water, ice or swamp operations. Holds world's helicopter speed record of 146.735 mph and world's helicopter altitude record of 22,289 ft. both set by Capt. Russell M. Dobyns at Vandalia, Ohio, September, 1953.

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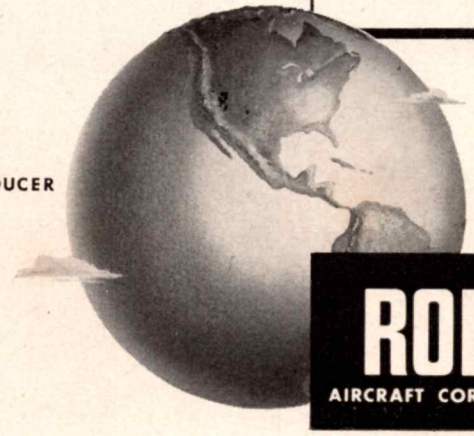

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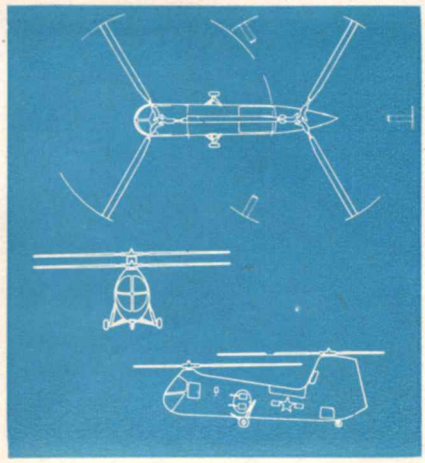


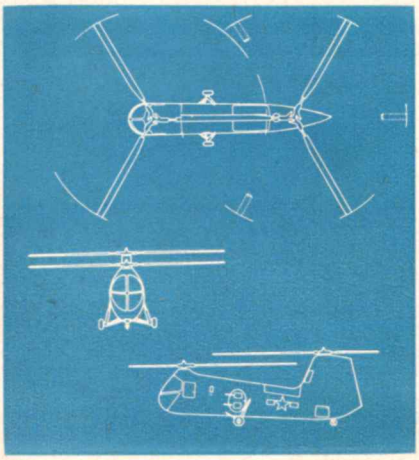
TYPE: Utility and Rescue

SPECIFICATIONS: Rotor dia. 35 ft.; Fuselage length 32 ft.; Overall length 48 ft. 6 in.; Height 12 ft. 6 in.; Empty weight 3928 lb.; Gross weight 6100 lb.; Engine Continental R-975-42, 550 hp at 2400 rpm.

PERFORMANCE: Maximum speed 108 mph; Service ceiling 10,000 ft.; Range 345 mi.

REMARKS: Quantity production for U.S. Army for use as telephone line layer, emergency rescue, general utility duties.

RETRIEVER
HUP-3



TYPE: Search and rescue

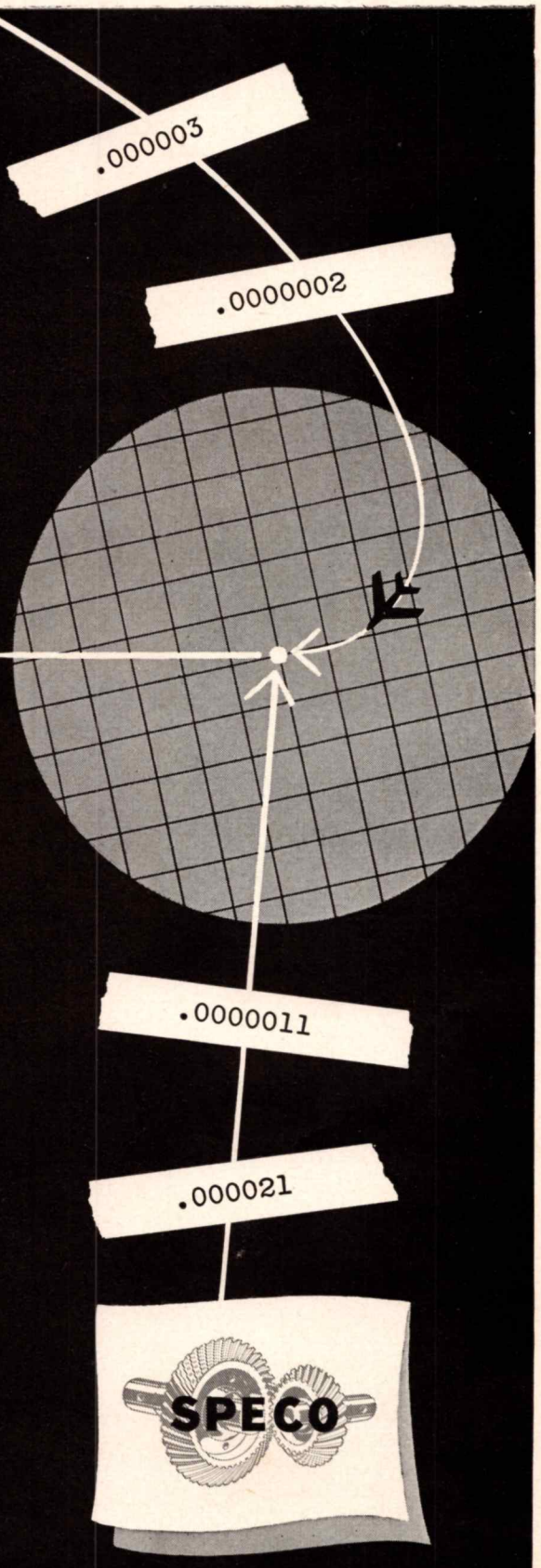
SPECIFICATIONS: Rotor dia. 35 ft.; Fuselage length 32 ft.; Overall length 48 ft. 6 in.; Height 13 ft. 2 in.; Empty weight 3966 lb.; Gross weight 5355 lb., Maximum 6100 lb.; Engine Continental R-975-34, 525 hp at 2300 rpm; Fuel 100 gal.

PERFORMANCE: Maximum speed 125 mph; Cruising speed 100 mph; Rate-of-climb 1200 fpm; Service ceiling 10,000 ft.; Range 400 mi.

REMARKS: Production model seats six or two-man crew and 1425-lb. cargo. HUP-1 featured vertical fins either side of tail pylon but installation of automatic pilot has obviated their necessity.

How many places

east of the decimal point?



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SIKORSKY HR2S-1

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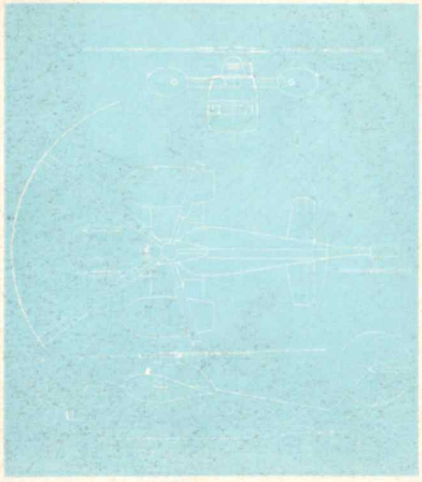


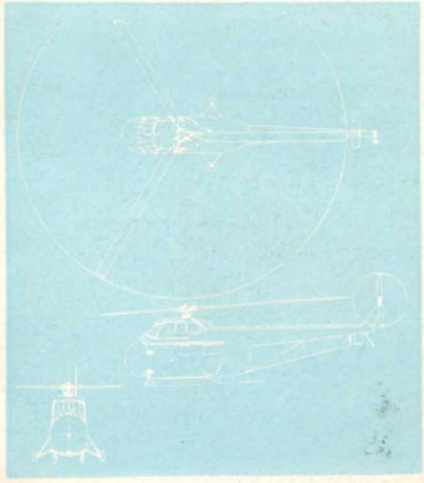
TYPE: Assault

SPECIFICATIONS: Rotor dia. 90 ft.; Fuselage length 60 ft.; Gross weight 28,500 lb.; Engine (2) Pratt & Whitney R-2800, derated to 1900 hp.

PERFORMANCE: Maximum speed 156 mph.

REMARKS: Giant new Sikorsky is S-56 commercial model and H-37A Army model. Advanced version, both civil and military, will use two Allison T56 turboprop engines. HR2S-1 carries two Marine squads (26 men) or two jeeps plus crew complement. Commercial version, projected for 1956, will carry 38 passengers in airline service. Rotor and tail fold for carrier stowage, autopilot and anti-icing equipment standard. Clamshell nose doors permit cargo and troop loading. Retractable main landing gear, first on production helicopter.

SIKORSKY H-19D



TYPE: Utility

SPECIFICATIONS: Main rotor dia. 53 ft.; Anti-torque rotor dia. 8 ft. 8 in.; Length 42 ft. 2 in.; Height 13 ft. 4 in.; Empty weight 4795 lb.; Gross weight 7200 lb.; Overload gross weight 8,000 lb. Engine Pratt & Whitney R-1340-57, 600 hp @ 2250 rpm takeoff; Fuel 185 gal.

PERFORMANCE: Maximum speed 101 mph; Cruise speed 85 mph; Initial rate-of-climb 780 fpm; Service ceiling 11,400 ft.; Range 405 mi.

REMARKS: Commercial S-55 in cargo and passenger service in Los Angeles, Miami and New York. Air Force H-19A saw brilliant service in Korea. Pratt & Whitney-powered version is H-19A in USAF, H-19C in USA, HO4S-2 in USCG and HRS-2 in USMC. Wright-powered version is H-19B in USAF, H-19D in USA, HO4S-3 in USCG and HRS-3 in USMC.

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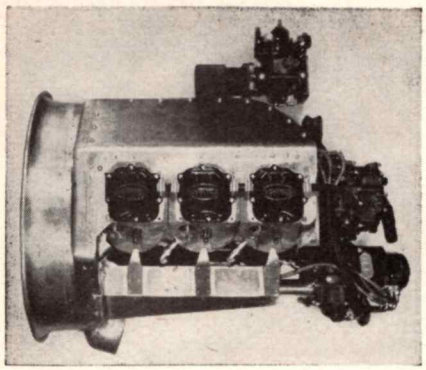


6V4-178-B32/B33

TYPE: 6-cyl. helicopter engine

PERFORMANCE: Maximum power 178 hp at 3000 rpm; Fuel consumption 0.52 lb./hp.hr.; Oil consumption 0.002 lb./hr.

SPECIFICATIONS: Height 34.75 in.; Width 30.8 in.; Dry weight 308 in.; Bore 4.5 in.; Stroke 3.5 in.; Displacement 335 cu. in.; Compression ratio 7:1.

6V6-245-B16F

TYPE: 6-cyl. helicopter engine

PERFORMANCE: Maximum power 245 hp at 3275 rpm; Fuel consumption 0.52 lb./hp.hr.; Oil consumption 0.002 lb./hr.

SPECIFICATIONS: Height 39.25 in.; Dry weight 353 lb.; Bore 4.75 in.; Stroke 4.00 in.; Displacement 425 cu. in.; Compression ratio 7.5:1.

6V4-200-C32/C33

TYPE: 6-cyl. helicopter engine

PERFORMANCE: Maximum power 200 hp at 3100 rpm; Fuel consumption 0.52 lb./hp.hr.; Oil consumption 0.002 lb./hr.

SPECIFICATIONS: Length 29.03 in.; Dry weight 333 lb.; Bore 4.5 in.; Stroke 3.5 in.; Displacement 335 cu. in.; Compression ratio 8.5:1.

6A4-165-B3

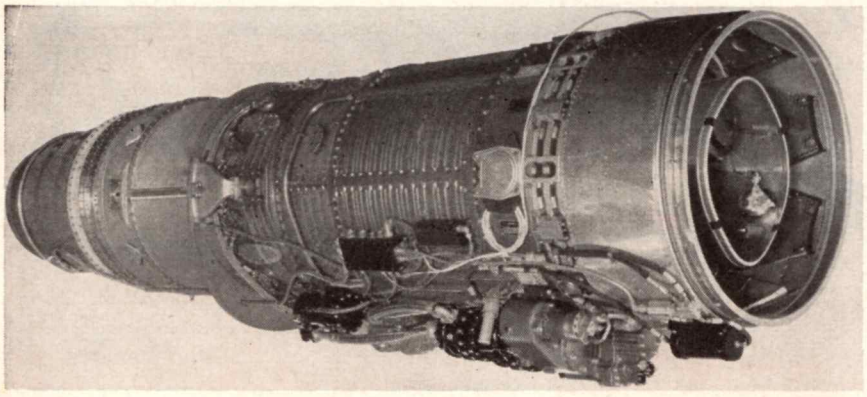
TYPE: 6-cyl., horizontally-opposed

PERFORMANCE: Maximum power 165 hp at 2800 rpm; Cruise power 124 hp at 2200 rpm; Fuel consumption 0.5 lb./hp.hr.; Oil consumption 0.002 lb./hp.hr.

SPECIFICATIONS: Length 27.4 in.; Dry weight 324 lb.; Bore 4.5 in.; Stroke 3.5 in.; Displacement 335 cu. in.; Compression ratio 7:1.

ALLISON DIVISION, GENERAL MOTORS CORP.

INDIANAPOLIS, INDIANA



T40-A-10

TYPE: Dual unit turboprop

PERFORMANCE: 5850 eshp @ 14,300 rpm at s.l.; Fuel consumption 0.620 lb./hp.hr.; Oil consumption 4.0 lb./hr.

SPECIFICATIONS: Width 39 in.; Height 36 in.; Length 182 in.; Weight 2864 lb.; Compressor 19-stage axial-flow; Turbine 4-stage.

REMARKS: Made up of two T38 units coupled to common gearbox driving counter-rotating propeller units. T40-A-6 used in Douglas A2D-1 and North American XA2J-1, both now abandoned. T40-A-10 mounted in Convair R3Y-1 flying boat. Advanced version, T54-A-2, features output of 7500 eshp.

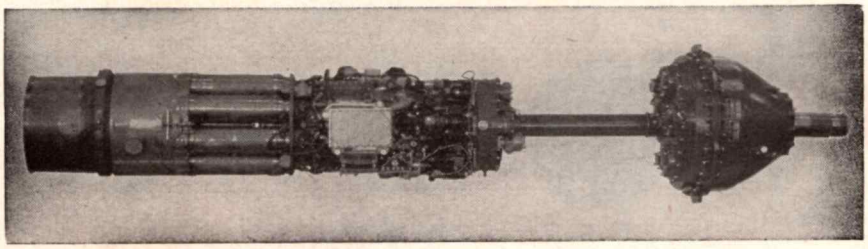
J71-A-1

TYPE: Axial-flow turbojet

PERFORMANCE: Static thrust 9700 lb. at 6100 rpm; Fuel consumption 0.90 lb./lb./hr.; Oil consumption 2.0 lb./hr.

SPECIFICATIONS: Diameter 37 in.; Length 172 in.; Frontal area 7.5 sq. ft.; Weight 4090 lb.; Compressor 16-stage; Turbine 3-stage.

REMARKS: Cannular type combustion chamber with 10 burners clustered within annular combustor area. Afterburner-equipped models J71-A-2, 3 and 7 produce 14,000 lb. thrust, have 4400-lb. weight. Independent internal oil supply and system, anti-icing retractable air inlet screens. Scheduled for installation in Douglas B66, McDonnell F3H-3.



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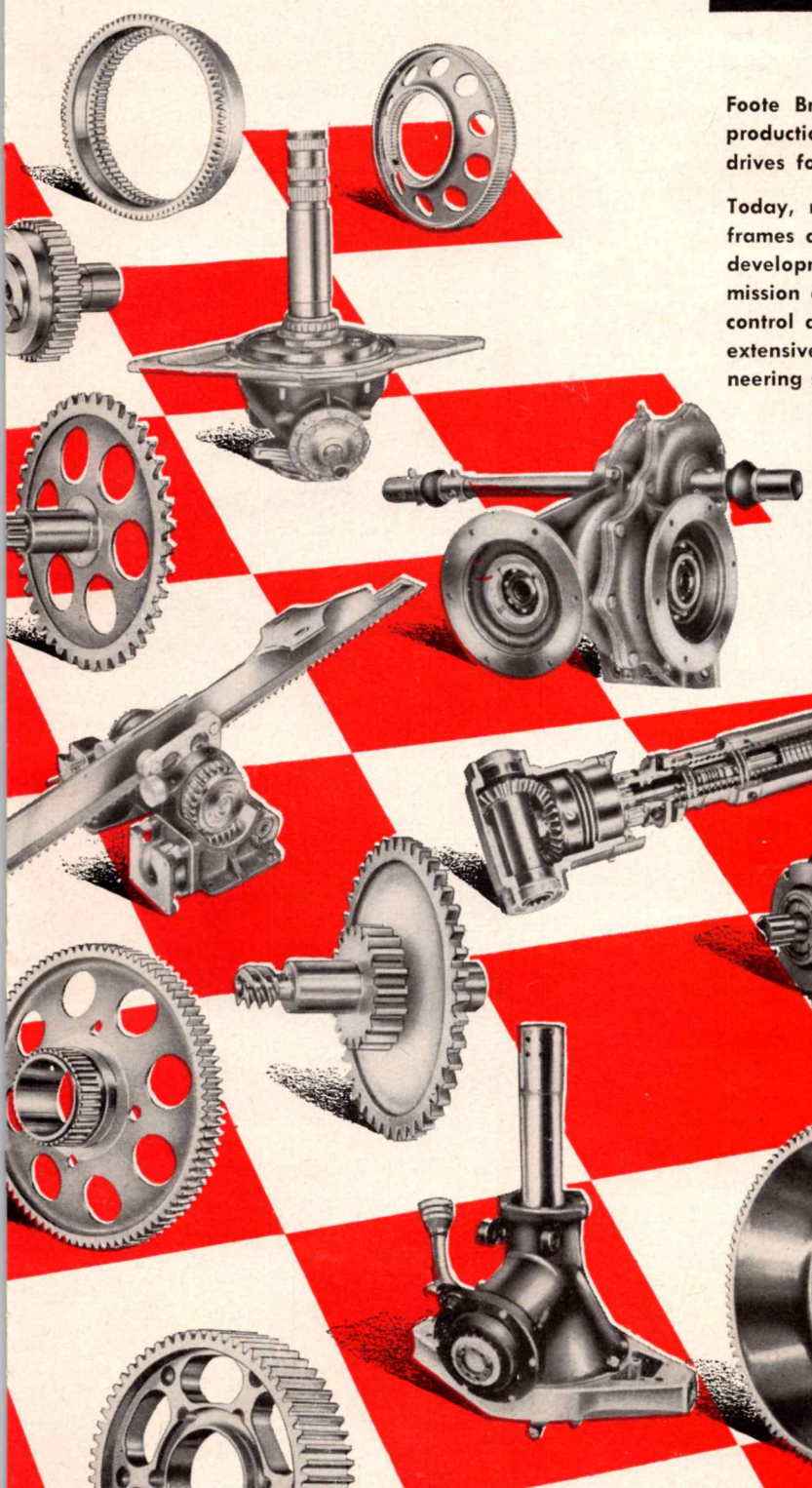

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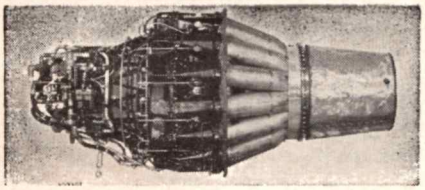
J33-A-35

TYPE: Centrifugal-flow turbojet

PERFORMANCE: Static thrust 5400 lb. at 11,750 rpm with water-alcohol injection, 4600 lb. at 11,750 rpm dry; Fuel consumption 1.14 lb./lb./hr.

SPECIFICATIONS: Diameter 50½ in.; Length 107 in.; Weight 1820 lb.; Compression ratio 4.41; Air mass flow 87 lb./sec.; Exhaust temperature 1265 deg. F.

REMARKS: Used in Lockheed T-33A and TV-2 jet trainers.



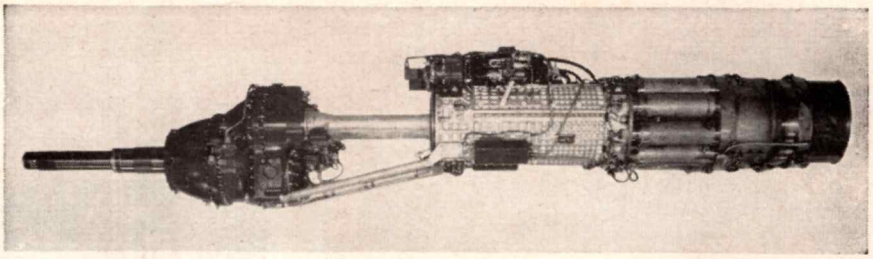
J35-A-35

TYPE: Axial-flow turbojet

PERFORMANCE: Static thrust 5800 lb. at 8000 rpm normal, 7400 lb. static thrust at 8000 rpm with afterburning; Normal rated thrust 4990 lb. at 7650 rpm; Cruise 4491 lb. at 7370 rpm.; Fuel consumption 1.10 lb./hp./hr.

SPECIFICATIONS: Diameter 37 in.; Length 195½ in.; Weight 2830 lb.; Compressor 11-stage axial-flow; Turbine single-stage; Air mass flow 90 lb./sec.; Exhaust temperature 1340 deg. F.

REMARKS: Afterburner - equipped model used in Northrop F-89D all-weather fighter.



T38-A-6

TYPE: Axial-flow turboprop

PERFORMANCE: 2925 eshp @ 14,300 rpm for takeoff at s.l.; Fuel consumption 0.620 lb./hp.hr.; Oil consumption 2.5 lb./hr.

SPECIFICATIONS: Height 26.8 in.; Width 34.3 in.; Length 147 in.; Weight 1385 lb.; Compressor 19-stage axial-flow; Turbine 4-stage.

REMARKS: Used initially in Convair Turbo Liner, now undergoing development and evaluation by Allison. Advanced model, T56-A-1, produces 3750 eshp, is scheduled for Lockheed XC-130, Sikorsky HR2S and Piasecki H-16B.

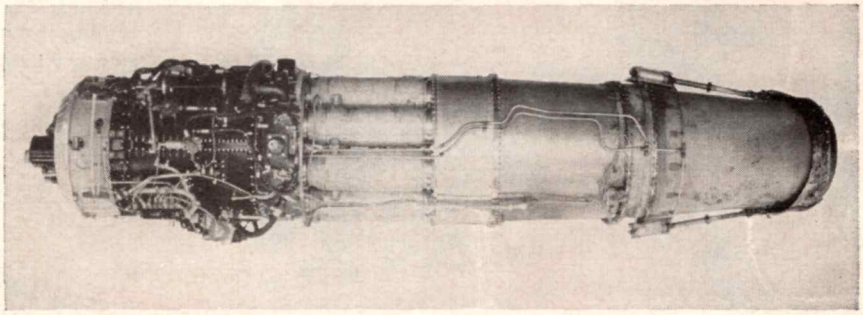
J35-A-29

TYPE: Axial-flow turbojet

PERFORMANCE: Static thrust 5800 lb. at 8000 rpm; Rated thrust 4900 lb. at 7650 rpm; Cruise thrust 4410 lb. at 7400 rpm.; Fuel consumption 1.07 lb./lb./hr.

SPECIFICATIONS: Diameter 37 in.; Length 146 in.; Weight 2305 lb.; Compression ratio 5.1:1; Air mass flow 90 lb./sec.

REMARKS: Used in Republic F-84G Thunderjet fighter.



CONTINENTAL MOTORS CORP.

MUSKEGON, MICHIGAN

C90-12F

TYPE: 4-cyl., horizontally-opposed

PERFORMANCE: Maximum power 90 hp at 2475 rpm; Cruise 68 hp at 2350 rpm; Fuel consumption 0.52 lb./hp.hr.

SPECIFICATIONS: Length 31.25 in.; Dry weight 186 lb.; Bore 4-062 in.; Stroke 3.875 in.; Displacement 201 cu. in.; Compression ratio 7:1.

C145-2

TYPE: 6-cyl., horizontally-opposed

PERFORMANCE: Maximum power 146 hp at 2700 rpm; Cruise 108 hp at 2450 rpm; Fuel consumption 0.5 lb./hp.hr.

SPECIFICATIONS: Length 41 in.; Dry weight 265 lb.; Bore 4.062 in.; Stroke 3.875 in.; Displacement 301 cu. in.; Compression ratio 7:1.

E185-1

TYPE: 6-cyl., horizontally-opposed

PERFORMANCE: Maximum power 205 hp at 2600 rpm; Cruise 130 hp at 2050 rpm; Fuel consumption 0.5 lb./hp.hr.

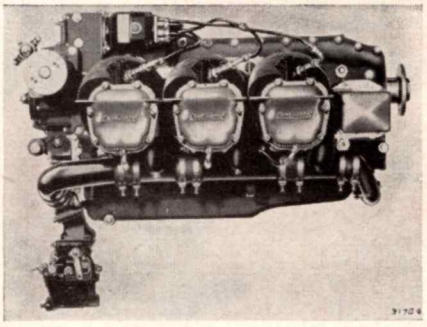
SPECIFICATIONS: Length 46.66 in.; Dry weight 350 lb.; Bore 5.00 in.; Stroke 4.00 in.; Displacement 471 cu. in.; Compression ratio 7:1.

O-470-A

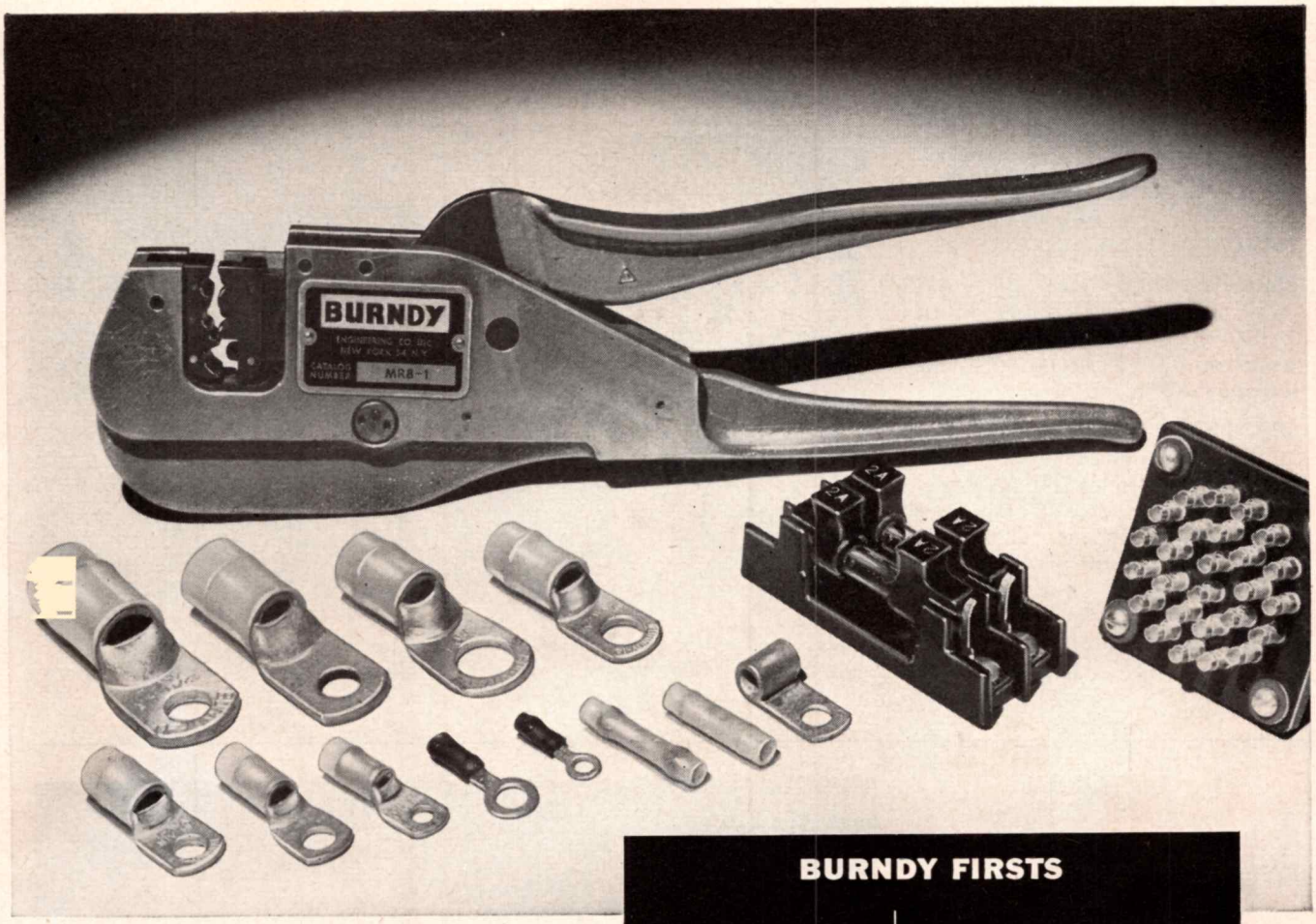
TYPE: 6-cyl. horizontally-opposed; aircooled.

PERFORMANCE: Maximum power 225 hp at 2600 rpm for takeoff; 175 hp at 2400 rpm cruise power; Fuel consumption 0.5 lb./hp.hr.

SPECIFICATIONS: Height 19.62 in.; Length 36.03 in.; Bore 5.0 in.; Stroke 4.0 in.; Displacement 471 cu. in.; Compression ratio 7.01 to 1; Dry weight 357 lb.; Carburetor Marvel MA-4-5; Ignition Bendix-Scintilla S6RN-25; Starter Delco-Remy; Generator Delco-Remy; Fuel pump Romec; Oil cooler Harrison.



REMARKS: Installed in Cessna 180 and 310 aircraft, the new engine is adaptable as fan-cooled helicopter powerplant and available in geared and supercharged models. The latter models feature unique belt-driven external supercharger.



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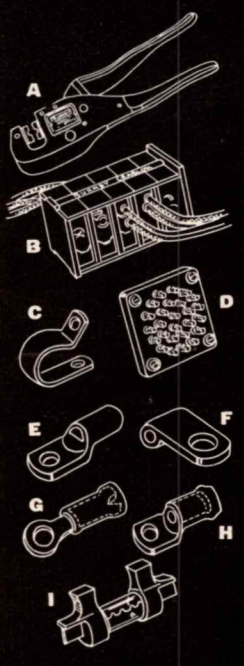

A — Manual installation tools for all compression terminals. Bull. 53Y1.

B — Crablok multiple disconnect terminal strip. Bull. CB50.

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E — Complete line of compression terminals thru 4/0. Bull. 51Y4.

F — Flag type compression terminals. Bull. 51Y4.

G — Insulated compression terminals thru 2/0. Bull. 53Y4.

H — Insulated aluminum compression terminals thru 1/0. Bull. 53Y4.

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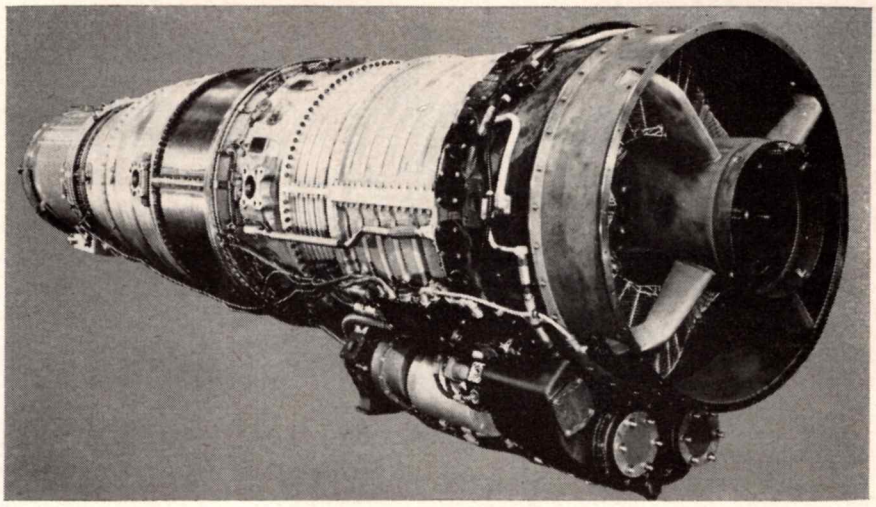
53-25

GENERAL ELECTRIC COMPANY

EVENDALE, OHIO

J73-GE-3



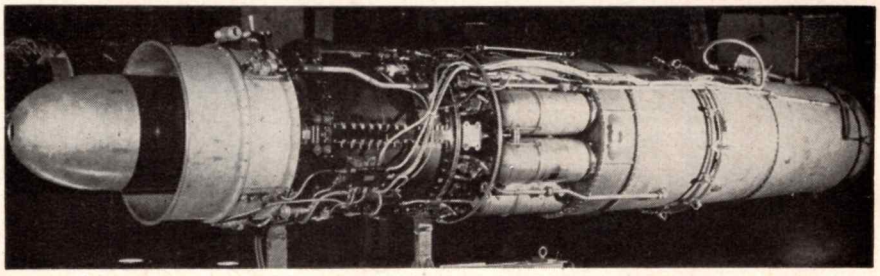
TYPE: Axial-flow turbojet

PERFORMANCE: Static thrust 9300 lb. at 8000 rpm; Afterburner version 14,000 lb. static thrust; Fuel consumption 0.90 lb./lb./hr.; Oil consumption 2.0 lb./hr.

SPECIFICATIONS: Diameter 36.75 in.; Length (standard) 146 in.; Length (afterburner version) 200 in.; Weight 3600 lb.; Compressor 12-stage axial-flow; Turbine 2-stage; Combustion section 10 combustors within cannular chamber.

REMARKS: Originally J47-GE-21, new engine features cannular type combustion section, improved compressor. Dimensions same as J47 permitting interchangeability. Installed in North American F-86H Sabre jet fighter in production at Columbus, Ohio plant. J73-GE-5 is afterburner version.

J47-GE-17



TYPE: Axial-flow turbojet.

PERFORMANCE: Augmented thrust believed as high as 8000 lb.; static thrust more than 5200 lb. at 7950 rpm.

SPECIFICATIONS: Length about 225 in.; Diameter 36.75 in.; frontal area 7.4 sq. ft.; inlet airflow more than 90 lb./sec.; compressor stages 12; turbine stage 1; fuel pump positive displacement gear type; starter-generator General Electric d.c.; fuel control system electronic.

REMARKS

Afterburner-equipped, the -17 is used in the North American F-86D all-weather fighter. It features integrated electronic fuel and jet nozzle control system, including an automatic computer system, a high-altitude starting system operable at 50,000 ft. and complete inlet anti-icing system.

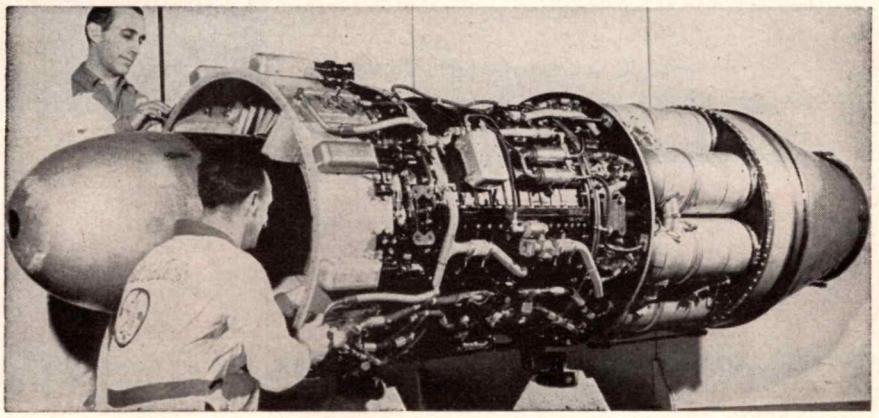
J47-GE-E

TYPE: Axial-flod turbojet

PERFORMANCE: Static thrust 5800 lb. dry, 6700 lb. water-alcohol injection, 7200 lb. with afterburning, all ratings at 7950 rpm, normal rated thrust 4320 lb. at 7370 rpm, cruise thrust 3700 lb. at 7000 rpm; Fuel consumption 0.90 lb./lb./.; Oil consumption 2.0 lb./hr.

SPECIFICATIONS: Diameter 36.75 in.; Length (standard) 144 in., (afterburner) 225 in.; Weight varies from 2500 to 3000 lb.; Compressor 12-stage axial-flow; Turbine single-stage.

REMARKS: Model E engine includes J47-GE-2 Navy engine for North American FJ-2, J47-GE-23, -27, -27, and -29, Air Force engines featuring anti-icing pylons in air inlet, retractable air inlet secreens, high-altitude ignition system, various detail changes for particular installations. General Electric produced more J47 engines during 1953 than any other jet engine in the world.



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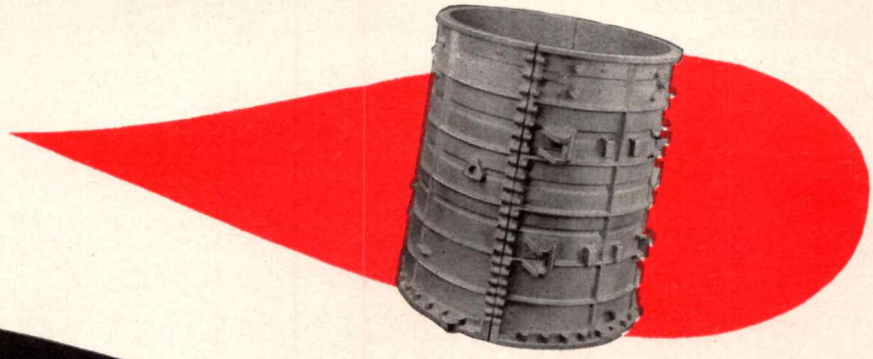
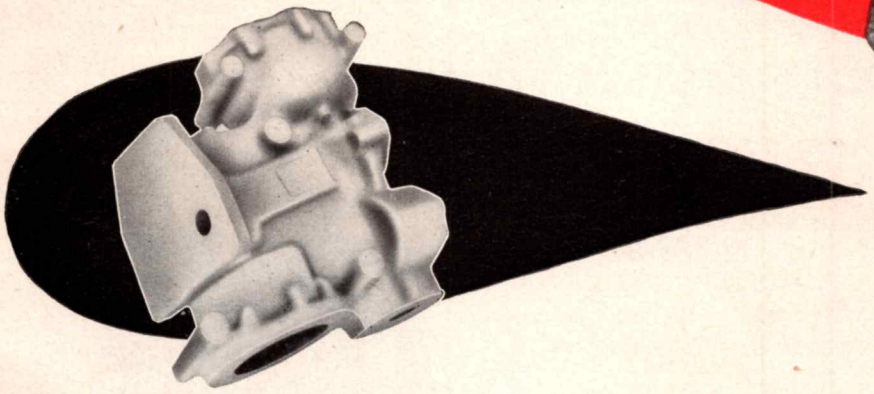
These compressor casings for jet aircraft engines are permanent mold aluminum castings, about 36″ long, and weighing 130 lbs. each. Aluminum Industries produces permanent mold and sand castings in a size range from one ounce to one ton.





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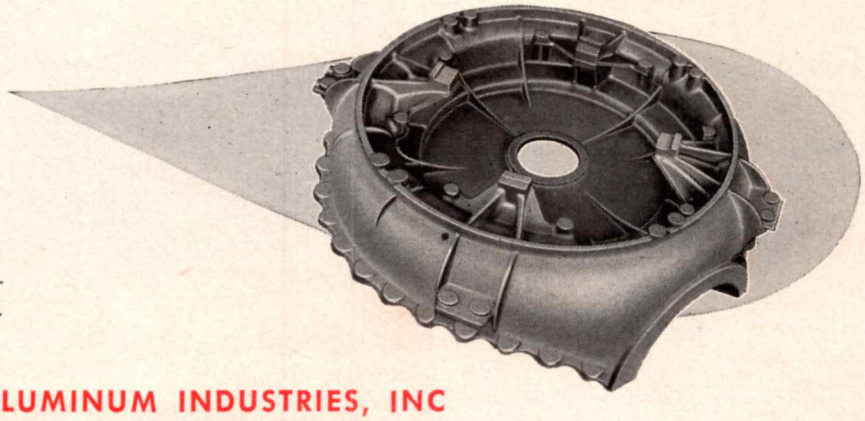

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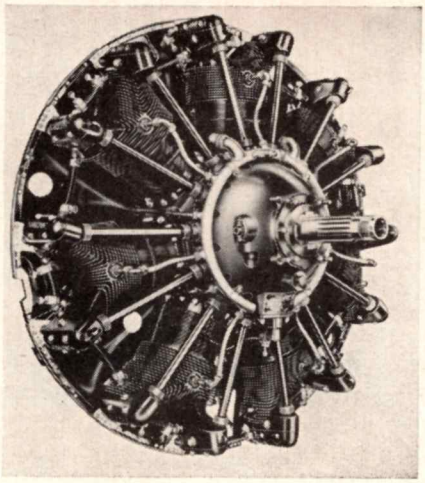
R-755-A

TYPE: 7-cyl radial, air-cooled, direct-drive

PERFORMANCE: Maximum power 300 hp at 2200 rpm for takeoff; Fuel consumption 0.45 lb./hp.hr.; Oil consumption 0.015 lb./hr.

SPECIFICATIONS: Diameter 44 in.; Length 39.5 in.; Displacement 757 cu. in.; Dry weight 505 lb.; Compression ratio 6:1; BMEP 144 lb./sq. in.; Bore 5.25 in.; Stroke 5.00 in.

REMARKS: Used in Cessna 195 four-place monoplane.



R-755-B

TYPE: 7-cyl. radial, air-cooled, direct-drive

PERFORMANCE: Maximum power 275 hp at 2200 rpm for takeoff; Fuel consumption 0.45 lb./hp.hr.; Oil consumption 0.015 lb./hr.

SPECIFICATIONS: Diameter 44 in.; Length 39.5 in.; Displacement 757 cu. in.; Bore 5.25 in.; Stroke 5.00 in.; Compression ratio 6:1; Dry weight 505 lb.; BMEP 132 lb./sq. in.

REMARKS: Similar to R-755-A except reduced pressure and output.

LYCOMING-SPENCER DIVISION

AVCO MFG. CORP., WILLIAMSPORT, PA.

O-235-C1

TYPE: 4-cyl., horizontally-opposed

PERFORMANCE: Maximum power 115 hp at 2800 rpm; Cruise power 86 hp at 2350 rpm; Fuel consumption 0.52 lb./hp.hr.

SPECIFICATIONS: Length 29.56 in.; Height 22.53 in.; Width 32.00 in.; Dry weight 236 lb.; Bore 4.375 in.; Stroke 3.875 in.; Displacement 233.3 cu. in.; Compression ratio 6.75:1.

O-435-V1

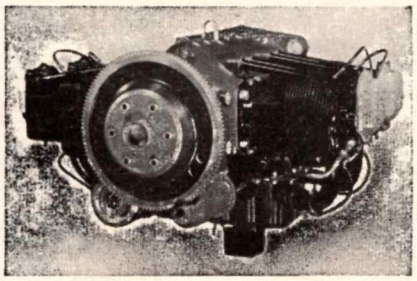
TYPE: 6-cyl. helicopter engine

PERFORMANCE: Maximum power 260 hp at 3400 rpm; Maximum continuous 245 hp at 3100 rpm; Specific fuel consumption 0.47 lb./hp.hr.

SPECIFICATIONS: Height 23.55 in.; Width 33.12 in.; Length 35.21 in.; Dry weight 394 lb.; Bore 4.875 in.; Stroke 3.875 in.; Displacement 434 cu. in.; Compression ratio 7.3:1.

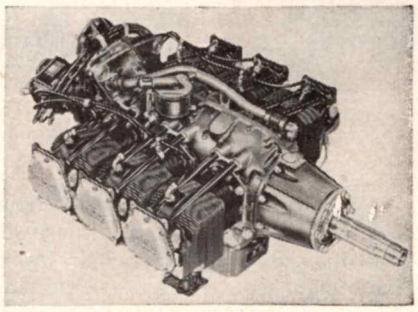
O-290-D2

TYPE: 4-cyl. opposed; air-cooled; direct drive.



PERFORMANCE: Takeoff hp 140 at 2800 rpm; cruising hp 100 at 2350 rpm at sea level.

SPECIFICATIONS: Displacement 289 cu. in.; bore 4.875 in.; stroke 3.875 in.; compression ratio 6.5:1. Dry weight 258 lbs.; frontal area 5.12 sq. ft.; width 32.32 in.; length 29.56 in.; Fuel grade 80; oil viscosity W-30; wet sump. Carburetor: Marvel Schebler MA-3A, float type. Magnetos: Scintilla S4LN-20; ignition not shielded.



GO-435-C2B

TYPE: 6-cyl. opposed; air-cooled; direct drive.

PERFORMANCE: Takeoff hp 260 at 3400 rpm; cruising hp 180 at 2750 rpm at sea level.

SPECIFICATIONS: Displacement 434 cu. in.; bore 4.875 in.; stroke 3.875 in.; compression ratio 7.5:1. Dry weight 430 lbs.; frontal area 6.64 sq. ft.; width 33.12 in.; length 40.04 in. Fuel grade 80; oil viscosity S-50 or W-40; wet sump. Carburetor: Marvel Schebler MA-4-5, float type. Magnetos: Scintilla S6LN-50; shielding optional.

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technical bulletin

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New Unusually long stroke of 9.625" at .3 inches per second under 4000 lb. load.

New The entire compact mechanism is contained in the female nut.

TYPE R-149 ★ SPECIFICATIONS

Weight: 10 lbs., 5 oz. **Stroke:** 9.625"
Maximum Static Load: 15,000 lbs.
Maximum Operating Load: 8,000 lbs.
Operating speed at 4000 pounds load and 27.5 volts DC: .3 inches per second
Load limit switches are adjustable
Non-jamming end stops
Motor shuts off when end stops are reached

Electrical Engineering and Manufacturing Corp.

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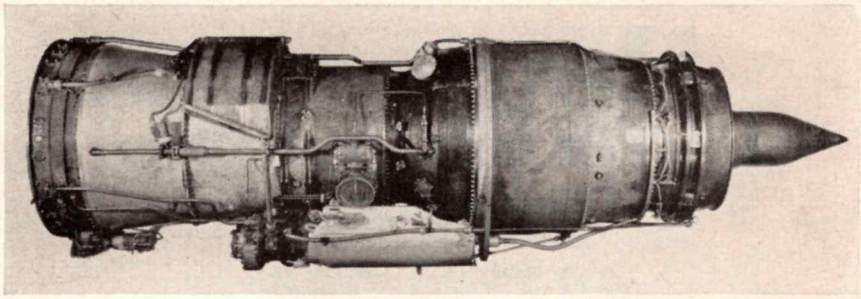
PRATT AND WHITNEY AIRCRAFT

EAST HARTFORD, CONNECTICUT

J57-P-7

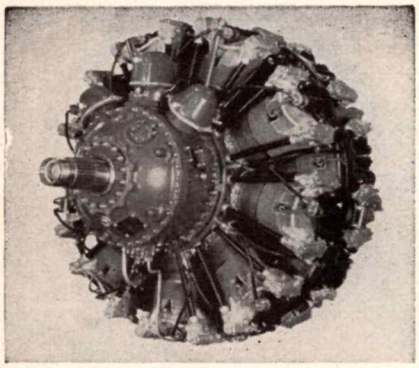


TYPE: Two-spool axial flow

PERFORMANCE: Static thrust 9700 lb.

SPECIFICATIONS: Diameter 40½ in.; Length 162 in.

REMARKS: Most powerful and most successful of any turbojet engine ever produced in the U.S., the J57 has progressed rapidly in output from 8700 lb., through 9200, 9700 and 9850 lb. in successive models. Test engines have delivered a full 10,000 lb. thrust, the first U.S. turbojet to achieve this long-term goal. First flight engines were eight in the Boeing YB-52, which first flew April 15, 1952. First fighter iistallation was North American YF-100, which flew May 25, 1953. Convair XF-102 with J57 flew Oct. 24, 1953. The powerful jet is also scheduled for the Douglas A3D-1 and F4D-2. "Two spool" arrangement uses separate turbine for each of two independent axial-flow compressors, a design which widens the efficient operating range of the engine.



Double Wasp R-2800-CB

TYPE: 18-cyl. two-bank radial; air-cooled; gear drive, 0.450 or 0.4375 ratio.

PERFORMANCE: (CB1, CB13) take-off hp wet 2400 at 2800 rpm, dry 2300 at 2800 rpm; (CB16) wet 2400 at 2800 rpm, dry 2050 at 2700 rpm. Specific fuel consumption .740 to .850 at 100% power.

SPECIFICATIONS: Displacement 2804 cu. in.; bore 5.75 in.; stroke 6.00 in.; compression ratio 6.75:1. Supercharger: single-stage; low ratio 7.28:1; high ratio (CB13) 9.1:1, (CB16) 8.4:1. Dry weight (CB1) 2357 lbs., (CB13, CB16) 2390 lbs.; diameter 52.80 in.; length 81.40 in. Fuel grade (CB1, CB13) 115/145, (CB16) 100/130; oil viscosity 100 at 210° F; dry sump. Carburetor: Stromberg PR-58E5, pressure type. Magnetos: Scintilla DLN-10; shielded ignition.

REMARKS

One of most widely-used engines in the world, R-2800-CB is used in Convair Liner, Douglas DC-6, Martin 4-0-4, Beech T-36A, Grumman AF-2, North American AJ-2, Chase C-123B and numerous foreign aircraft.

Wasp S1H (R-1340)

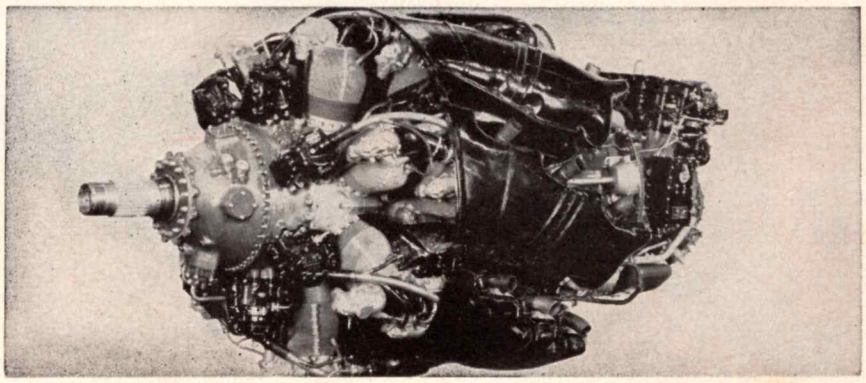
TYPE: 9-cyl. radial; air-cooled; direct or geared drive, (G) 3:2 ratio.

PERFORMANCE: Takeoff hp 600 at 2250 rpm; cruising hp 400 at 2000 rpm at 11,900 ft. Specific fuel consumption .690 at 100% power.

SPECIFICATIONS: Displacement 1344 cu. in.; bore 5.75 in.; stroke 5.75 in.; compression ratio 6:1. Supercharger: single-stage; low ratio 12:1. Dry weight (direct dr.) 865 lbs.; (gear dr.) 953 lbs.; diameter 51.80 in.; length (direct dr. S1H1) 43.01 in.; (gear dr. S1H1-G)) 47.81 in. Fuel grade 80/87; oil viscosity 100 at 210° F; dry sump. Carburetor: Stromberg NA-Y9E1, float type. Magneto: Scintilla SB9R; shielded ignition. Optional-make starter, generator, fuel pump. Same as S1H1 in all respects except as follows: Cruising hp 400 at 2000 rpm at 9000 ft. Specific fuel consumption .670 at 100% power. Supercharger: low ratio 10:1. Length of motor: (S3H2) 47.70 in.; (S3H1-G) 47.81 in.

REMARKS

Model S3H2 is similar to S3H1 but is installed vertically as in Bell 42, Gyrodyne 2, Sikorsky H-5F, HO3S-1, S-51 and S-51A.



Wasp Major R-4360-CB-2

TYPE: 28-cyl. four-bank radial; air-cooled; gear drive, 0.375 or 0.425 ratio.

PERFORMANCE: Takeoff hp wet 3500 at 2700 rpm, dry 3250 at 2700 rpm. Specific fuel consumption .710 to .760 at 100% power.

SPECIFICATIONS: Displacement 4363 cu. in.; bore 5.75 in.; stroke 6.00 in.; compression ratio 6.7:1. Supercharger: single-stage; low ratio (TSB3-G) 6.375:1, (B13) 6.95:1; high ratio (B13) 6.95:1. Dry weight (TSB3-G) 3482 lbs., (CB-2) 3688 lbs.; diameter 54.00 in.; length (TSB3-G) 96.75 in.; (B13) 101.75 in. Fuel grade (TSB3-G) 108/135, (B13) 115/145; oil viscosity 100 at 210° F; dry sump. Carburetor: Stromberg PR-100 B3, pressure type. Magneto: Scintilla D4RN-2; shielded ignition. Optional-make starter, generator, fuel pump.

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custom-engineered or standard types for a wide range of control needs on today's complex aircraft and missiles

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Throughout the most important period in aviation's advancement, Barber-Colman engineers have closely co-operated with major airframe and equipment manufacturers, the military, and all leading airlines. As a result they have acquired a thorough and very special knowledge of those factors in aircraft design which determine and limit the function, size, weight, *and performance* of accessory equipment.

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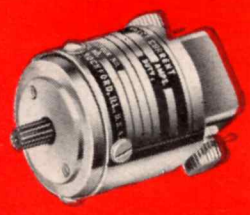
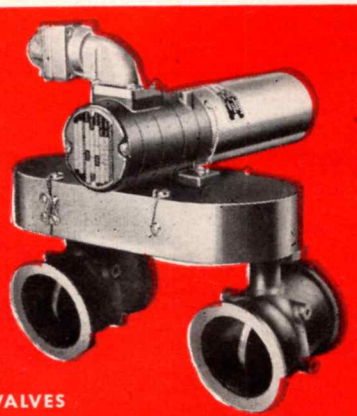
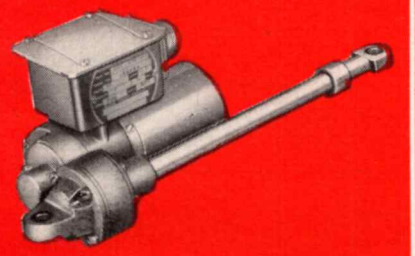
Illustrated is Barber-Colman's latest electronic control assembly. For use in a jet fighter, it incorporates relay and amplifier unit, selector control, and override switches in one panel-mounted assembly. Barber-Colman offers complete coverage of the automatic temperature control field—electric, electronic, cycling, proportioning.



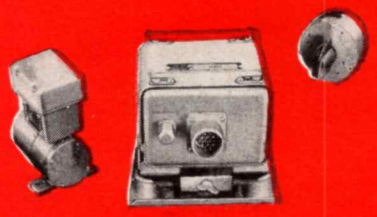
MOTORS
Small permanent-magnet and split-series d-c motors with true electrical balance, 25% higher efficiency, superior commutation, exceptionally low radio noise, and outstanding constructional features. Gear head versions offer wide selection of gear ratios.



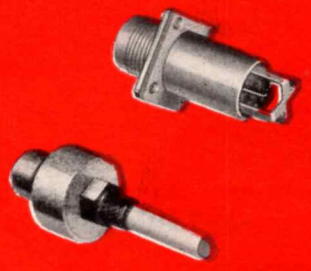
VALVES
Barber-Colman offers a wide variety of electrically actuated air valves for use with temperature and pressure control applications. This dual 2" valve assembly solved a difficult sequencing problem.



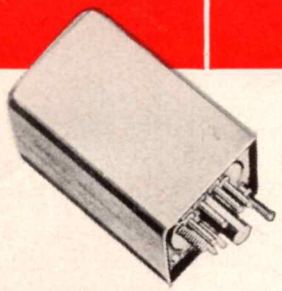
ACTUATORS
Rotary and linear types. These Barber-Colman actuators combine gear reductions, switching, mounting details, and other design features to meet most aircraft applications in their load-speed class.



POSITIONING CONTROLS
Completely integrated high-speed positioning control system inclusive of transmitting rheostat, d-c nonelectronic control box, and remote actuator. Unique circuitry provides anti-hunt feature.



THERMO-SENSITIVE ELEMENTS
Complete line of thermo-sensitive wire and thermistor sensing elements. New ceramic duct element provides solution to environmental extremes encountered in jet aircraft. Extremely fast response, withstands 800° F.



ULTRA-SENSITIVE RELAYS—Available in sensitivities from 50 microwatts to 1 milliwatt. Wide range of coils, enclosures, mounting details. Extensively used in balance detecting bridge circuits and as plate current relay in electronic applications. New type HVO offers savings in chassis mounting space.

Typical applications for Barber-Colman aircraft controls are: temperature control of cabin, cockpit, cargo, camera and electronic compartments . . . hot air or electrically heated windshields . . . wing and empennage anti-icing, and carburetor air . . . positioning of trim tabs, valves, throttles . . . flap unbalance detection . . . nose wheel steering . . . and hundreds of other applications. For data on Barber-Colman aircraft controls, write for Catalog F4141. Engineering sales offices in Los Angeles, Seattle, Baltimore, New York, Montreal.

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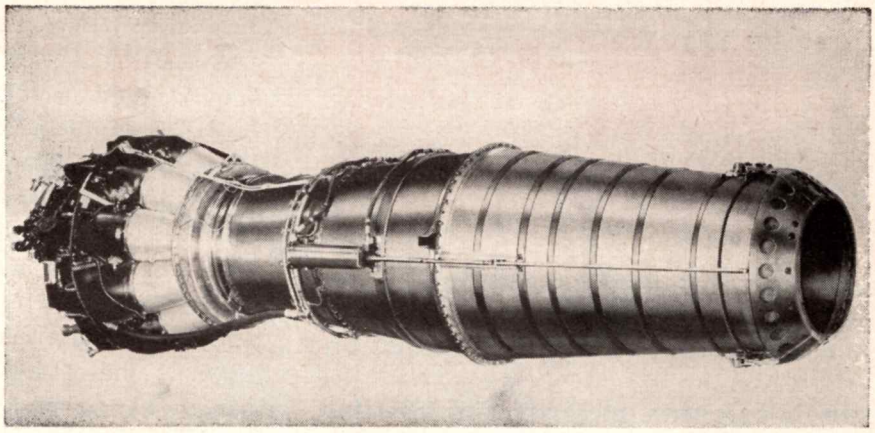
T34-P-2

PERFORMANCE: Maximum power 6000 hp at takeoff; normal rated power 5700 hp; specific fuel consumption 0.62 lb./hp/hr.

SPECIFICATIONS: Diameter 30 in.; length 155 in.; dry weight 2550 lb.; compressor stages 13; turbine stages 3; propeller reduction gear ratio 11:1.

REMARKS

Engine thrust is divided 90 percent to propeller turbine and 10 percent to jet nozzle. Stainless steel is used almost exclusively throughout the engine structure. Mechanical control system provides single-lever operation in cockpit. Hot air de-icing is used around the air inlet area. Has been assigned initial installation in Douglas YC-124B, Lockheed R7V-2.



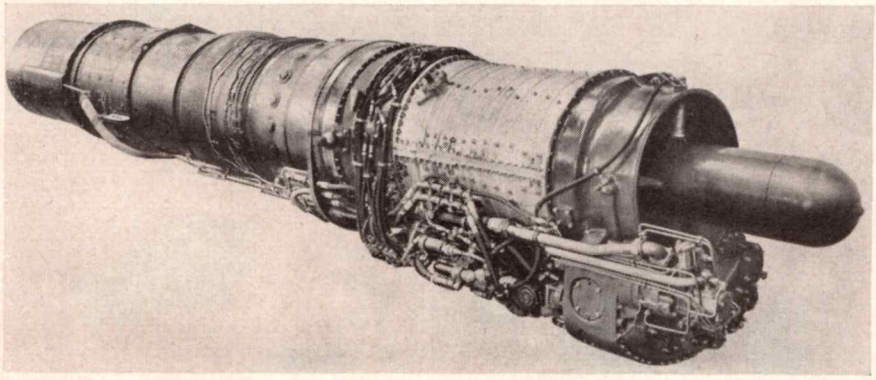
J48-P-6

PERFORMANCE: Static thrust 6250 lb. dry; 7000 lb. with w/a injection; 8750 lb. with afterburning.

SPECIFICATIONS: Diameter 50 in.; length 106.75 in. without afterburner; dry weight 2800 lb.; compressor stage 1; turbine stage 1; combustion chambers 9.

WESTINGHOUSE ELECTRIC CORP.

PHILADELPHIA, PA.



J46-WE-8

TYPE: Axial-flow turbojet
PERFORMANCE: Static thrust 4200 lb.

SPECIFICATIONS: Diameter 34 in.; Length 198 in.; Weight 2100 lb.

REMARKS: Improved J34, new J46 powers Douglas F3D-2 and Vought F7U-3. Present development and production program will end with present schedule. J46 is authorized 720 hr. between overhauls.

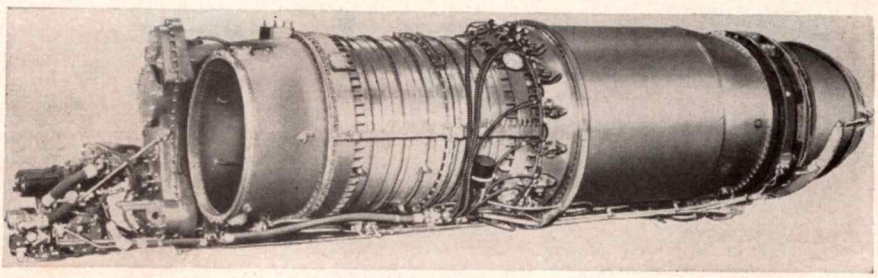
J34-WE-34

PERFORMANCE: Static thrust 3250 lb. at 12,500 rpm; rated thrust 2290 lb. at 11,500 rpm.

SPECIFICATIONS: Length 120 in.; Diameter 24 in.; dry weight 1200 lb.; frontal area 3.2 sq. ft.; compressor stages 11; turbine stages 2; maximum turbine inlet temperature 1425 deg. F; starter Westinghouse 10 hp, 24-v d.c. with 4-1 speed reducing gear train and 3-tooth driving jaw; fuel control system consists of matched emergency fuel pump and fuel control. The fuel control is a hydraulic, all-speed governing type. Switchover to the emergency pump is automatic upon failure of the primary pump.

REMARKS

J34 powers Vought F7U, McDonnell F2H, Douglas F3D, McDonnell XF-88 and Lockheed XF-90, two engines being used in each installation.



J40-WE-6

PERFORMANCE: Static thrust 7500 lb. Specific fuel consumption 0.95 lb./lb. thrust/hr. Specific oil consumption 1.0 lb./lb. thrust/hr.
SPECIFICATIONS: Diameter 36 in. Length 12 ft. 6 in. Frontal area 7.1 sq. ft. Dry weight about 3,000 lb. Compressor 10-stage, turbine 2 stage.

REMARKS: Automatic control system functions from single cockpit lever. Air inlet divided into two elliptic openings with accessories mounted between the arms of the "Y" duct. Afterburner-equipped model J40-WE-8 produces 13,800 lb. thrust using double row of fuel injectors in tailpipe. Originally scheduled for installation in XF10F-1, XF3H-1, XF4D-1, XA2D-1, XF2Y-1 but program being revised.

CANADA'S JETPOWERED INDUSTRY
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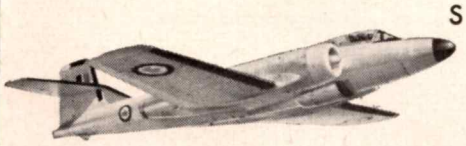
SINCE 1946 AVRO CANADA HAS..

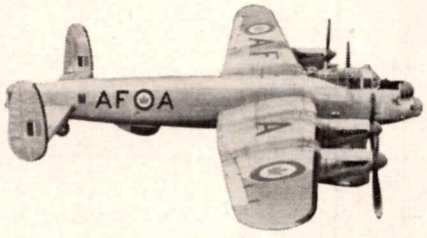


—designed, developed and produced the CF-100 in quantity for R.C.A.F. Squadrons. Now producing the more powerful, heavier armed CF-100, Mk. 4.

—designed, developed and produced the Orenda jet engine to power all CF-100's and all CANADAIR made Sabre 5's.

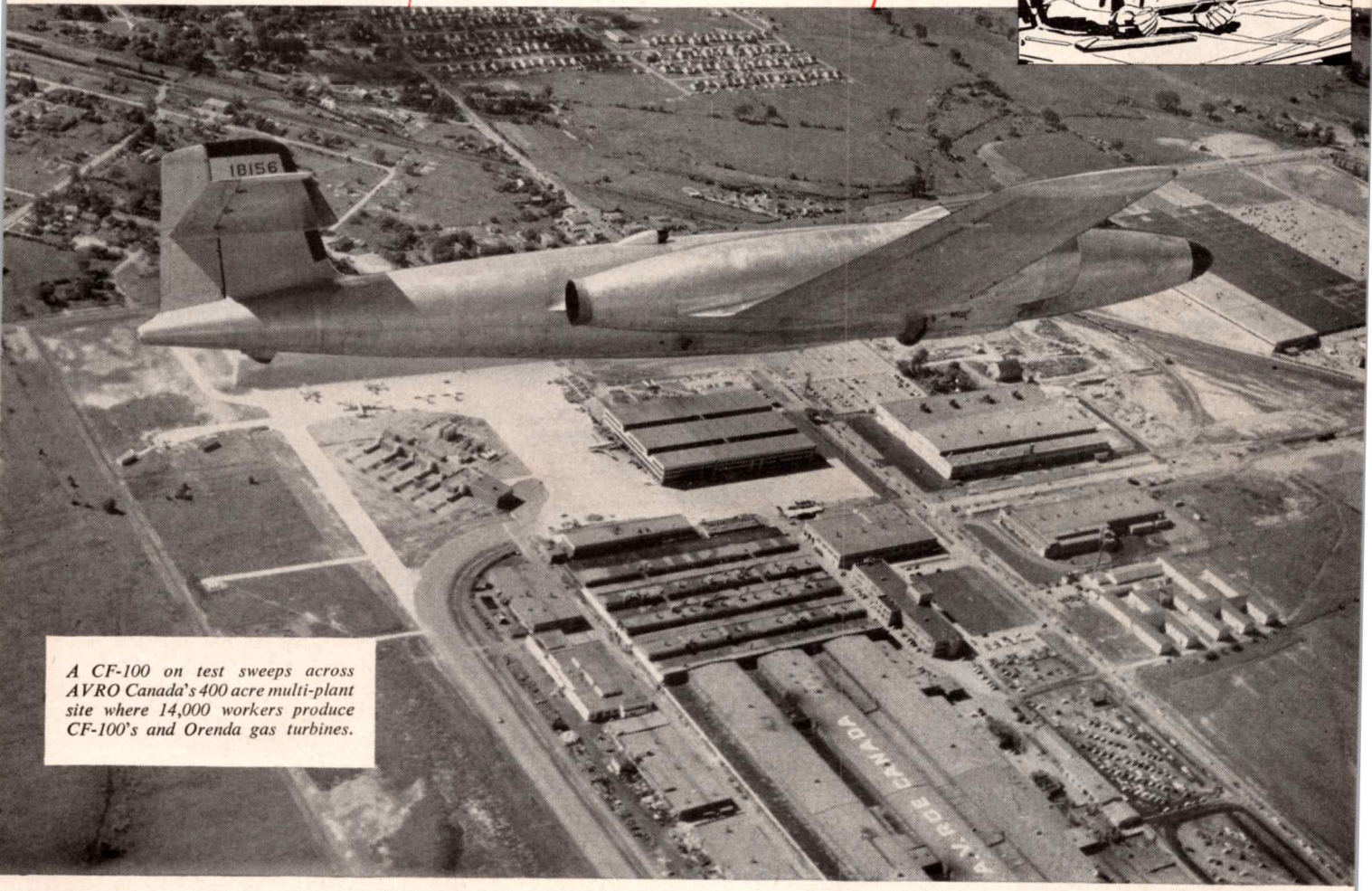
—improved the performance of all Sabre 5's with the more powerful ORENDA.

—pioneered jet transport in North America by designing and building the AVRO jetliner, still the first and only jetpowered transport produced on this continent.



—redesigned, re-engineered and converted large numbers of war-time Lancaster bombers for their current task of patrolling our sea approaches.

—created for our defence and peacetime development, design and engineering teams and research facilities dedicated to maintaining this country's position as a world aviation power.



A CF-100 on test sweeps across AVRO Canada's 400 acre multi-plant site where 14,000 workers produce CF-100's and Orenda gas turbines.

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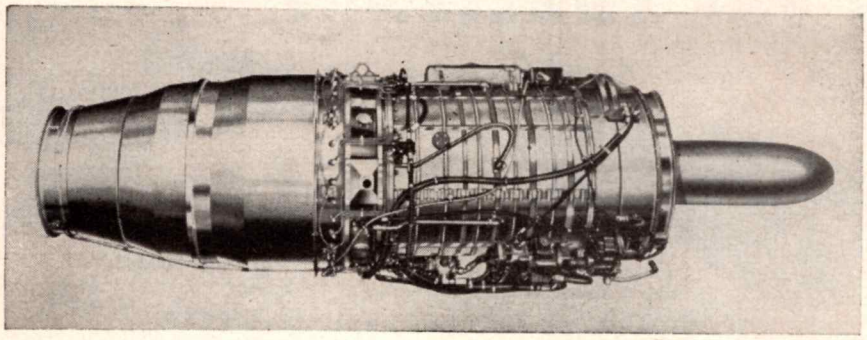


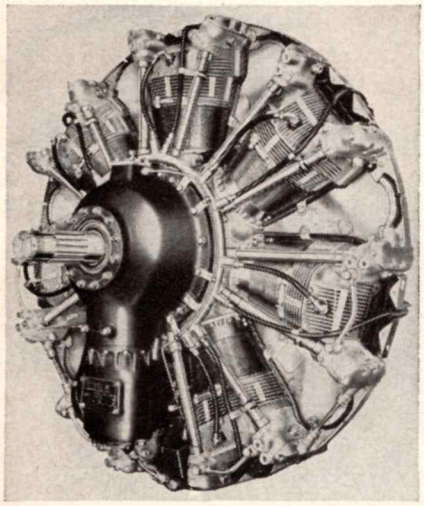
J65-W-3

TYPE: Axial-flow turbojet.

PERFORMANCE: Static thrust 7220

SPECIFICATIONS: Diameter 37.3 in.; length 133.85 in.; dry weight 2500 lb.; frontal area 6.78 sq. in.; Specific fuel consumption 0.915 lb/hr/lb.

REMARKS: Installed in Republic F-84F, RF-84F, Martin B-57A, North American FJ-3.



Cyclone 7BA (R-1300-1)

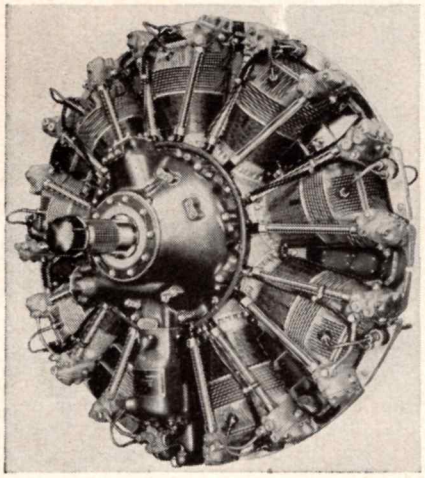
TYPE: 7-cyl. radial; geared drive.

PERFORMANCE: Takeoff hp 800 at 2600 rpm; cruising hp 490 at 2200 at 11,800 ft. Specific fuel consumption at 60% power .46 at 13,000 ft.

SPECIFICATIONS: Displacement 1300 cu. in.; bore 6.125 in.; stroke 6.315 in.; compression ratio 6.2:1. Supercharger: gear-driven, single stage; low ratio 7.2:1. Fuel grade 91/98; oil viscosity 120, dry sump. Dry weight 1055 lbs.; frontal area 13.8 sq. ft.; diameter 50.5 in.; length 48.1 in. Carburetor: Stromberg PD9F-1 pressure-type. Magnetos: Bosch S7LU-2; shielded ignition. Starter, generator, fuel-pump makes optional.

REMARKS

Installed in North American T-28



Cyclone 9HE (R-1820)

TYPE: 9-cyl. radial; geared drive.

PERFORMANCE: Takeoff hp 1525 at 2800 rpm; cruising hp 890 at 2400 rpm at 11,000 ft. Specific fuel consumption at 60% power .45 at 15,000 ft.

SPECIFICATIONS: Displacement 1820 cu. in.; bore 6.125 in.; stroke 6.875 in.; compression ratio 6.8:1. Supercharger: gear-driven, single-stage; low ratio 7.2:1, high ratio 8.7:1. Fuel grade 100/130; oil viscosity 120, dry sump. Dry weight 1460 lb.; frontal area 16.4 sq. ft.; diameter 54.9 in.; length 49.1 in. Carburetor: Stromberg PD12K-14, pressure-type. Magnetos: Scintilla S9LU-2; shielded ignition. Accessory makes optional.

REMARKS

REMARKS: Installed in Grumman S2F, SA-16A, Sikorsky H-19B, Douglas R4D-8.

Cyclone 18CB

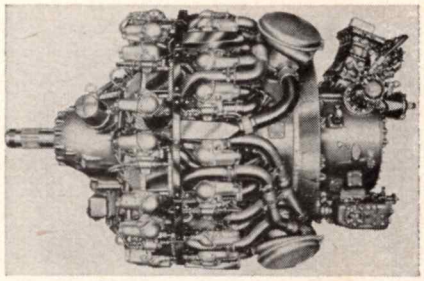
TYPE: 18-cyl. radial; geared drive.

PERFORMANCE: Takeoff hp 2800 at 2900 rpm; cruising hp 1470 at 2400 rpm at 14,700 ft. Specific fuel consumption at 60% power .45 at 8000 ft.

SPECIFICATIONS: Displacement 3350 cu. in.; bore 6.125 in.; stroke 6.312 in.; compression ratio 6.7:1. Supercharger: gear-driven, single-stage; low ratio 6.5:1, high ratio 8.7:1. Fuel grade 100/130; oil viscosity 120, dry sump. Dry weight 3065 lbs., frontal area 16.9 sq. ft.; diameter 55.6 in.; length 78.5 in. Carburetor: Bendix 135091 injection type. Magnetos: Scintilla DLN-9, shielded ignition. Accessory makes optional.

REMARKS

Installed in Lockheed L-1049 Constellations, P2V Neptune, Douglas AD Skyraider.



Turbo-Cyclone 18DA (R-3350-30W)

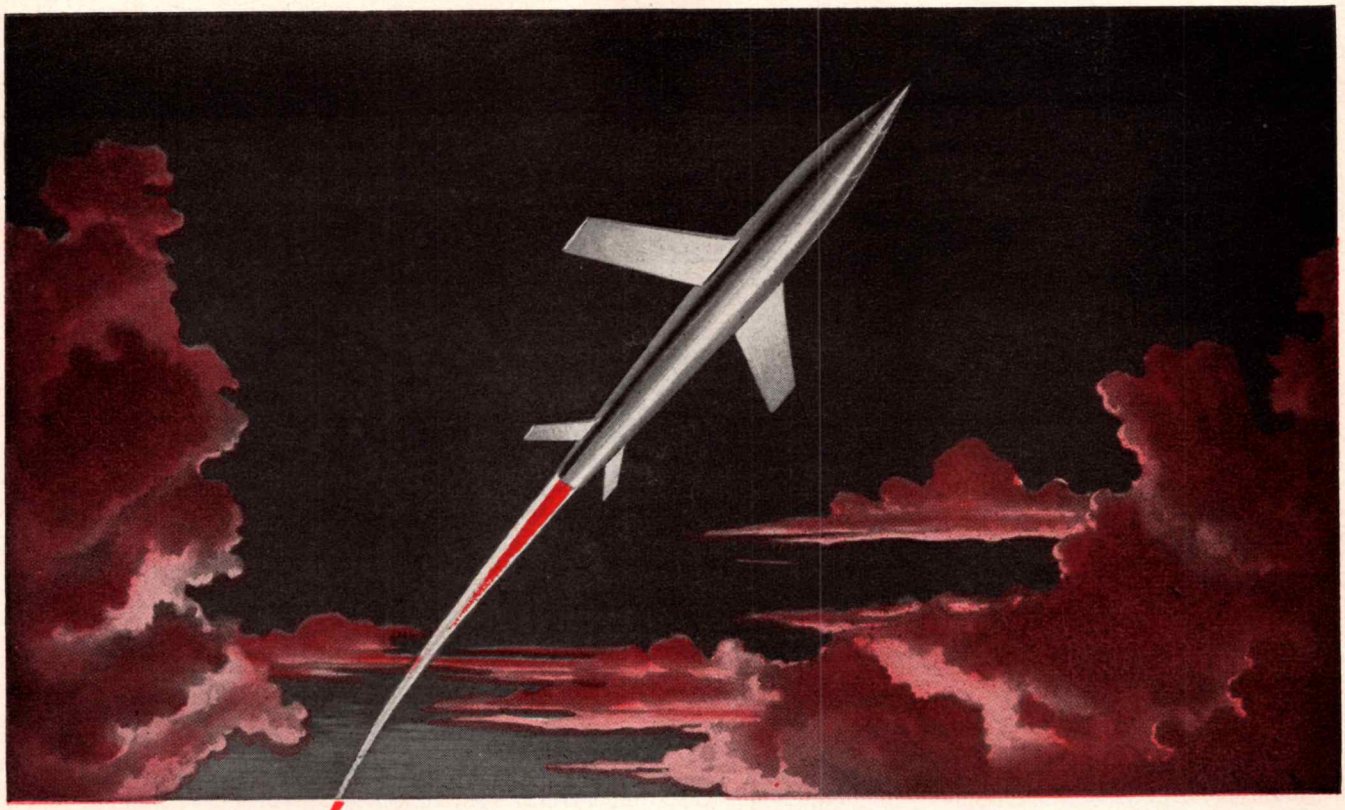
TYPE: 18-cyl. radial, 3 exhaust-driven turbines; geared drive.

PERFORMANCE: 3250 hp at 2900 rpm for takeoff; 2650 hp at 2600 rpm at 6500 ft. normal rated power.

SPECIFICATIONS: Displacement 3350 cu. in.; bore 6.125 in.; stroke 6.312 in.; compression ratio 6.7:1. Supercharger: gear-driven, single-stage; low ratio 6.5:1, high ratio 8.7:1. Dry sump, shielded ignition. Dry weight 3514 lbs.; Carburetor: Stromberg PR58T1; ignition: Scintilla DLN9.

REMARKS

REMARKS: Installed in Lockheed L-1049C versions, P2V, Fairchild C-119 versions, Martin P5M, Douglas DC-7.



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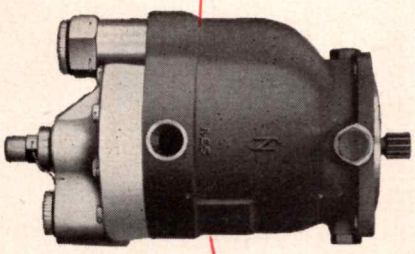

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Box 118
Tulakes, Okla.

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Long Beach, Calif.

James K. Nagamatsu, Pres.

Aeronca Manufacturing Corp.
Municipal Airport
Middletown, O.

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Aircraft Manufacturing Co.
Stewart Airport
P. O. Box 327
Tyler, Tex.

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1400 N. Rice Ave.
Bellaire, Tex.

Ben M. Anderson, Pres.; Marvin H. Greenwood, V.P. Engrg. & Sales; Lomis Slaughter, Jr., V.P. & Ch. Engr.

Atlas Aircraft Co.
P. O. Box 56
Helmet, Calif.

H. Ross Peacock, Pres.; I. Harvey Gibbell, V.P.

Baumann Aircraft Corp.
12270 Montague St.
Pacoima, Calif.

J. B. Baumann, Pres. & Ch. Engr.; E. C. Vettel, V.P. & Gen Mgr.; P. H. Bruns, Secy. & Treas.; J. T. Logan, Shop Supt

Beech Aircraft Corp.
Wichita, Kans.

O. A. Beech (Mrs. Walter H.), Pres.; John P. Gaty, V.P. & Gen. Mgr.; Frank E. Hedrick, V.P. & Co-ordinator; T. A. Wells, V.P. & Ch. Eng.; J. A. Elliott, Secy.-Treas.; L. Winters, Asst. Secy.

Bell Aircraft Corp.
P. O. Box 1
Buffalo 5, New York

Lawrence D. Bell, Pres. and Gen. Mgr.; Leston P. Faneuf, Secy.-Treas. & Asst. Gen. Mgr.; John W. Rane, Jr., Dir. Cont. Admin.

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Briegleb Aircraft Co.
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Adelanto, Calif.

William G. Briegleb, Pres.; George William G. Briegleb, Pres.

CallAir
Afton, Wyo.

Canadair, Ltd.
P. O. Box 6087
Montreal, P. Q., Canada

John Jay Hopkins, Ch. of Bd. & Mg. Dir.; Lawrence B. Richardson, Vice-Ch. of Bd.; Peter H. Redpath, V.P. Sales; J. Geoffrey Notman, Pres. & Gen. Mgr.; John E. L. Duquet, Q.C., V.P. & Gen. Counsel; W. K. Ebel, V.P., Engrg.; Robert A. Neale, V.P. Mfg.; E. B. Schaefer, Ch. Eng.; Karl H. Larsson, Ch. Sales Engr.

Cessna Aircraft Co.
5800 E. Pawnee Rd.
Wichita, Kans.

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Santa Monica, Calif.

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Fairchild Aircraft Div.
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Fairchild Guided Missiles Div., Fairchild Engine & Airplane Corp.
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R.F.D. No. 5
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Akron 15, O.

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Florence Ave. at Teale St.
Culver City, Calif.

Howard Hughes, Pres.; Ira C. Eaker, V.P.; Harold L. George, V.P. & Gen. Mgr.; Rea E. Hopper, Ch. Engr.

Jamieson Aircraft Co., Inc.
500 E. Sanitarium Rd.
Akron 12, Ohio

Charles M. Jamieson, Pres. & Ch. Engr.; E. A. Parker, V.P. & Sales Mgr.; E. S. Jamieson, Secy.-Treas.

Johnson Aircraft Corp.
Stewart Airport
Box 690
Tyler, Tex.

R. S. Johnson, Pres. & Gen. Mgr.; C. O. Johnson, V.P.; Irvin B. Weise, Ch. Engr.

Kaiser-Frazer Corp.
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Willow Run, Mich.

Edgar F. Kaiser, Pres.; Stephen Girard, Exec. V.P.; John Hallett, Exec. V.P. & Gen. Mgr.

Lanier Aircraft Corp.
Marlton Medford Airport
Marlton, N. J.

Edward M. Lanier, Pres.

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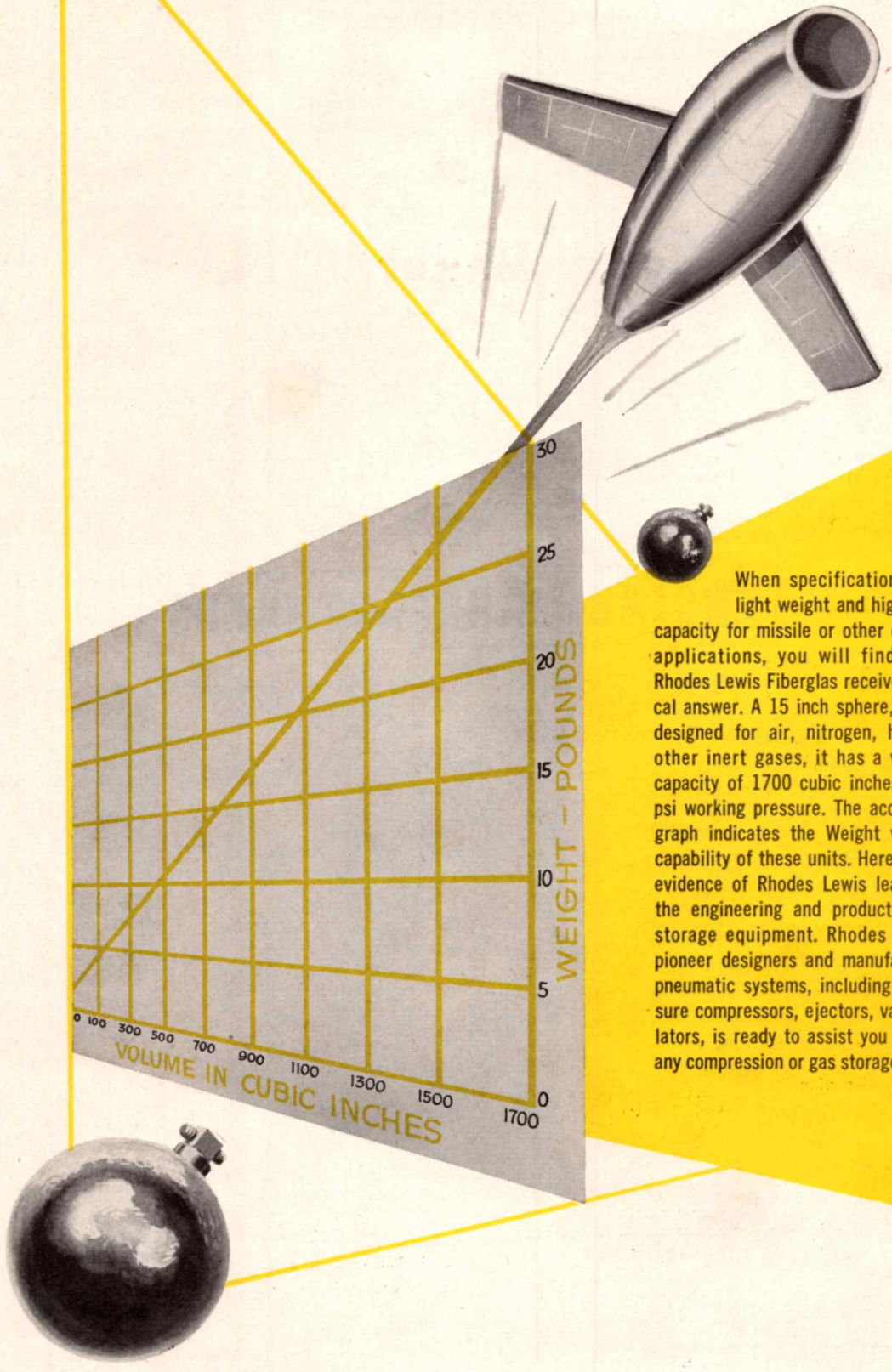

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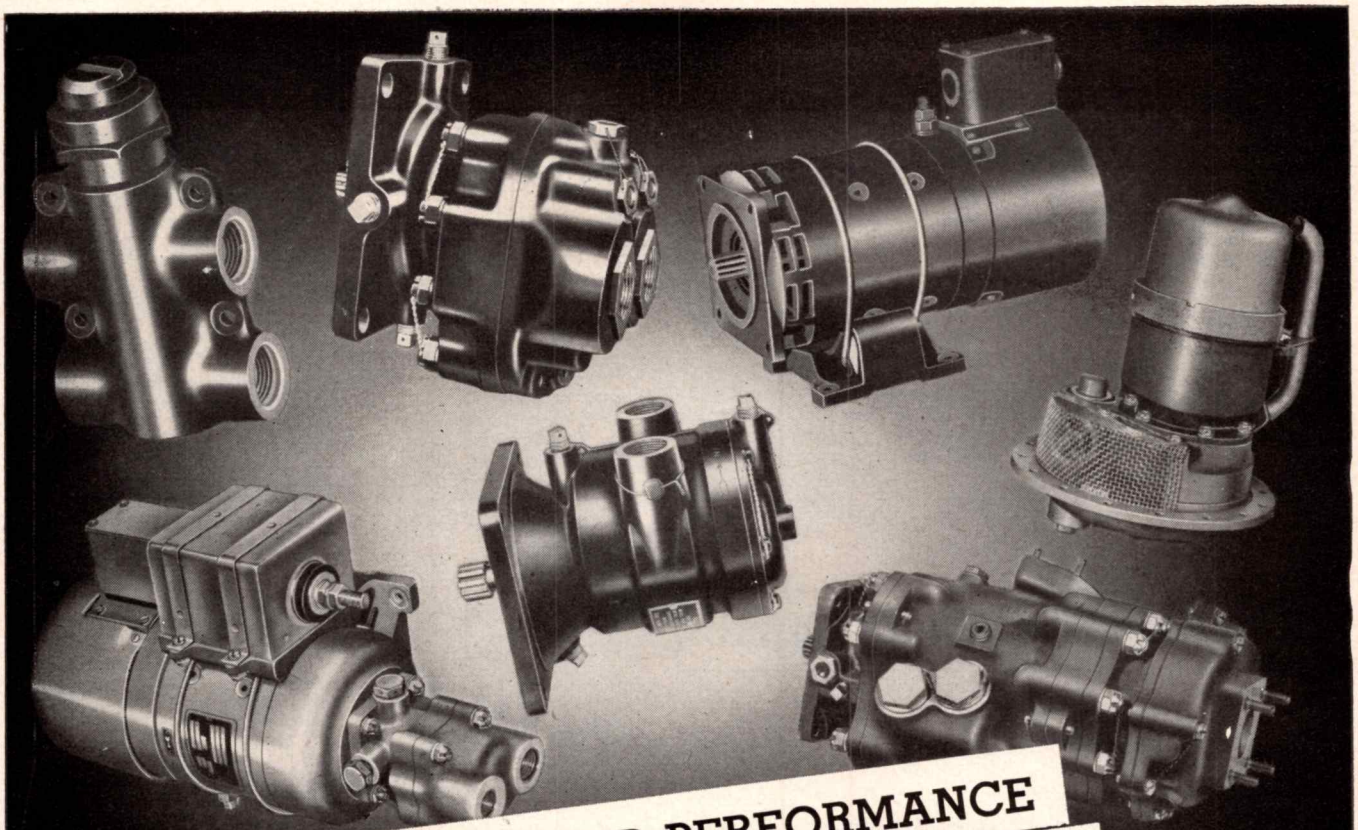

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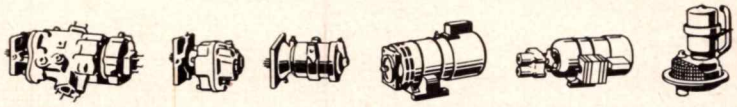

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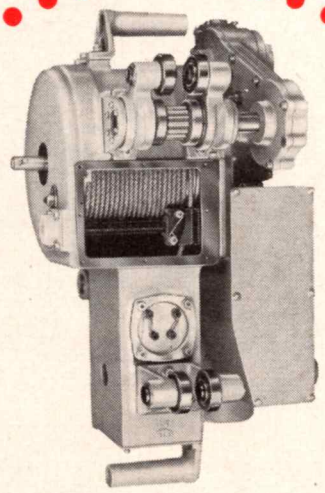

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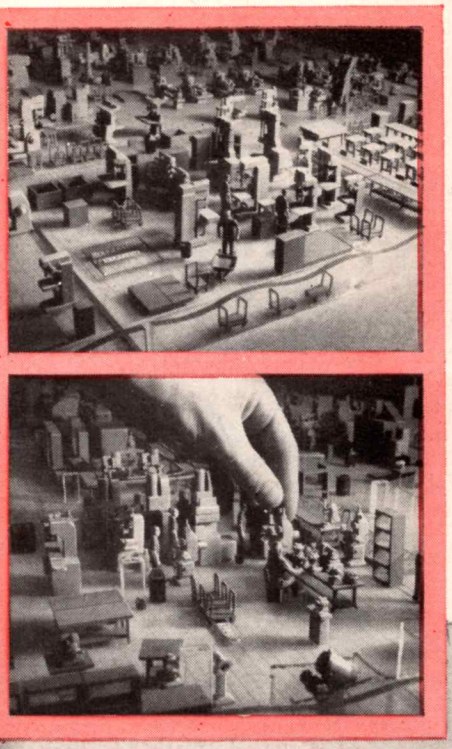

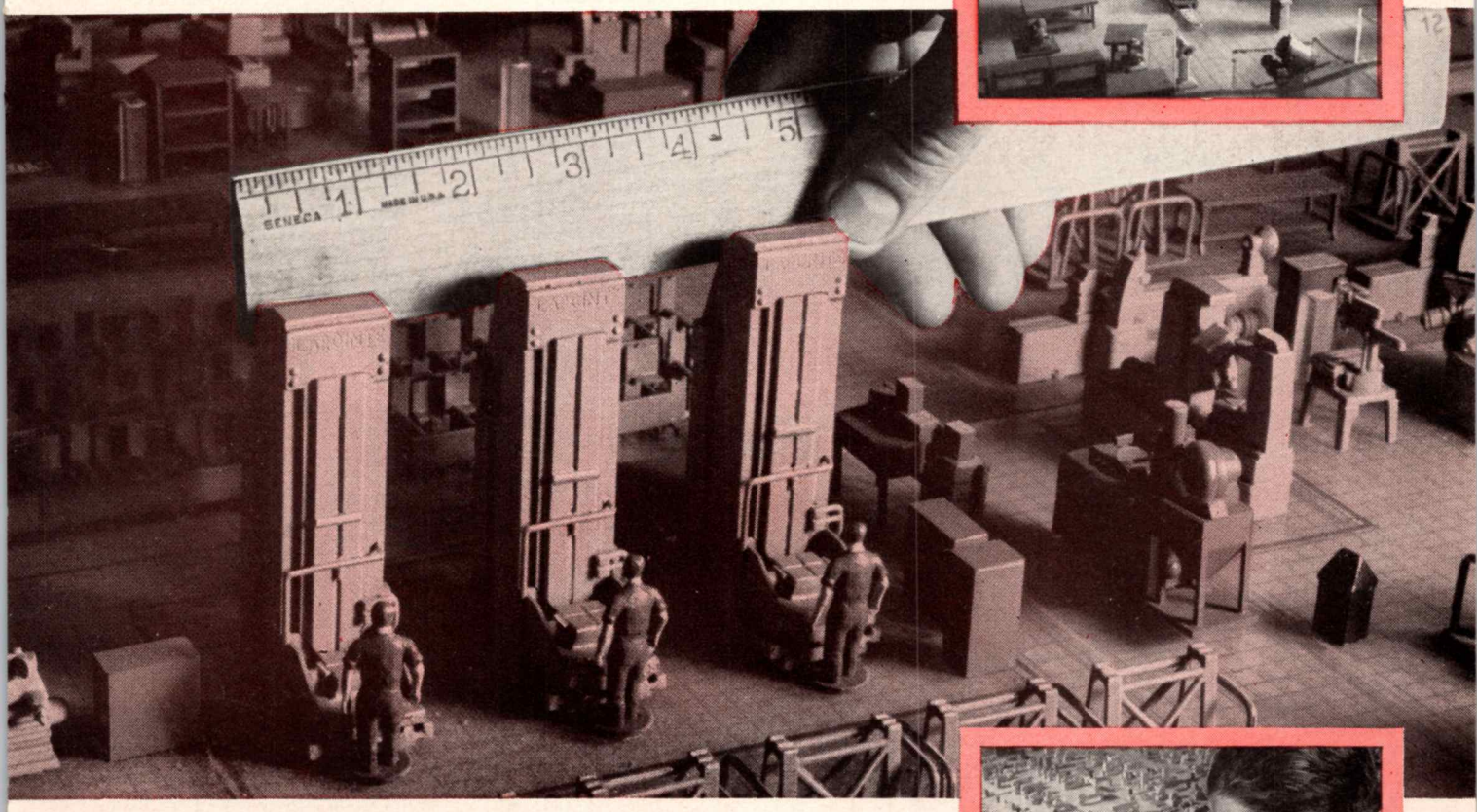

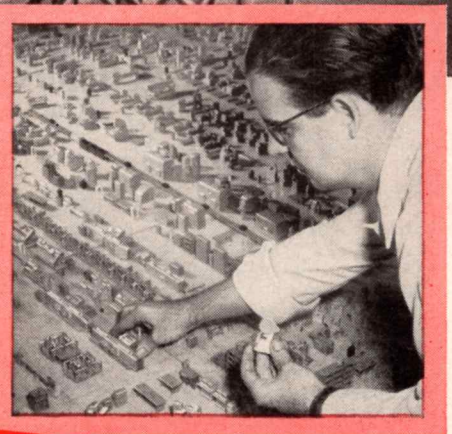

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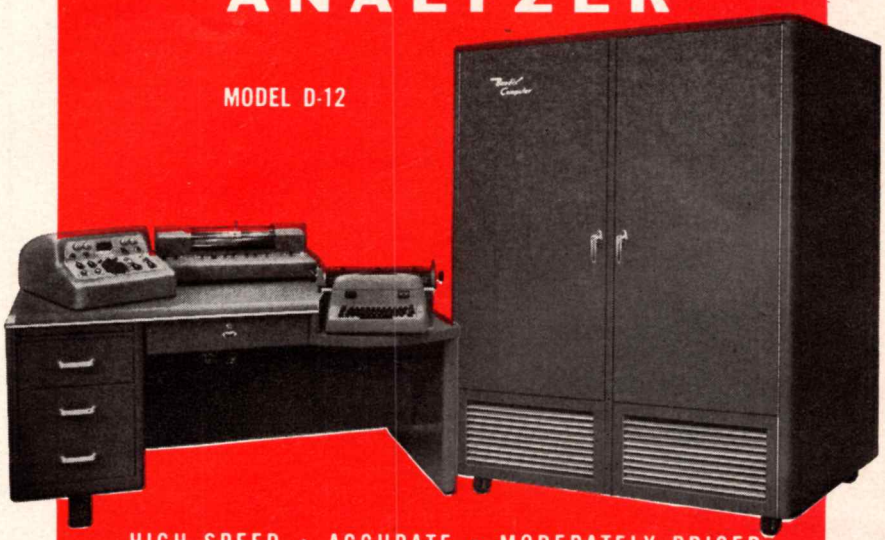

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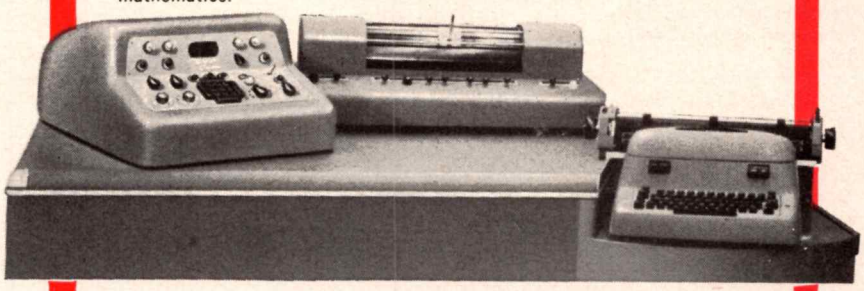

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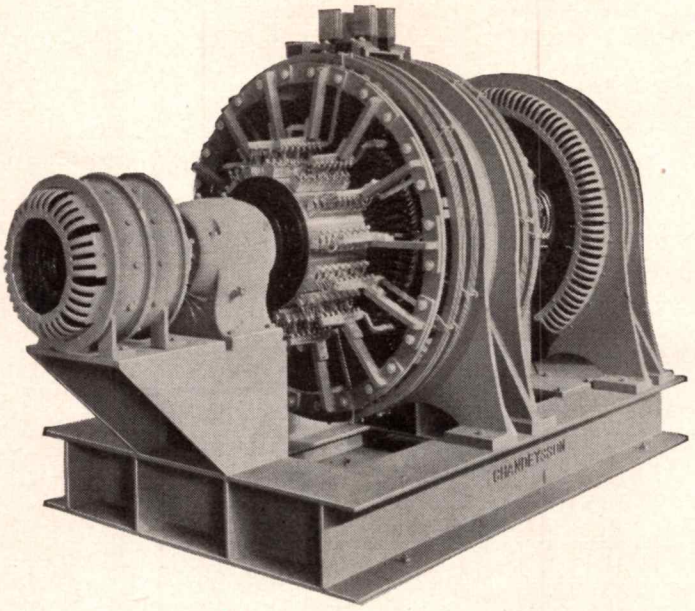

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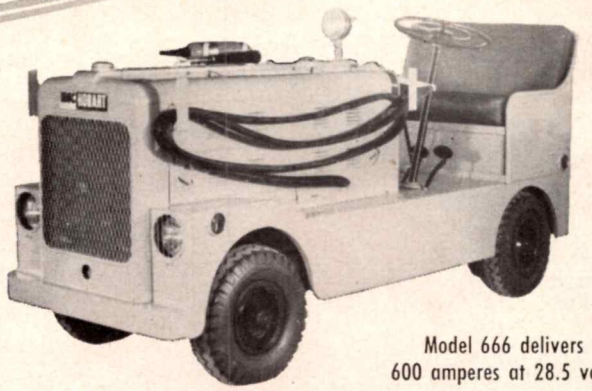

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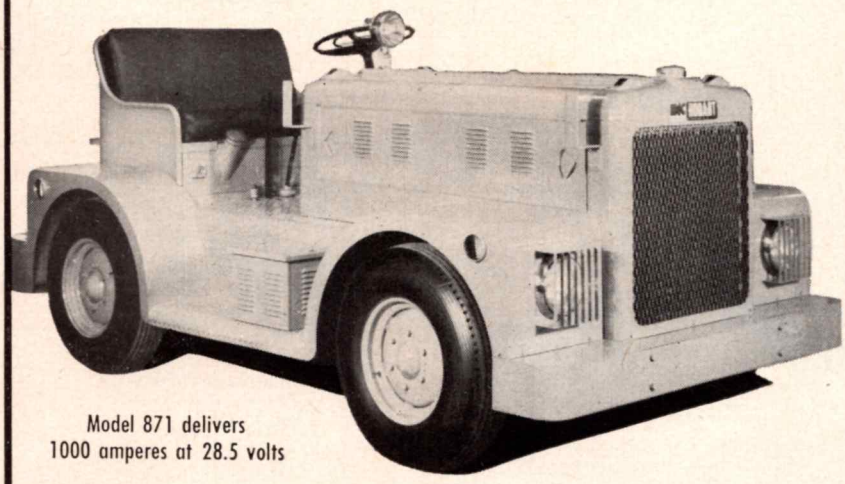

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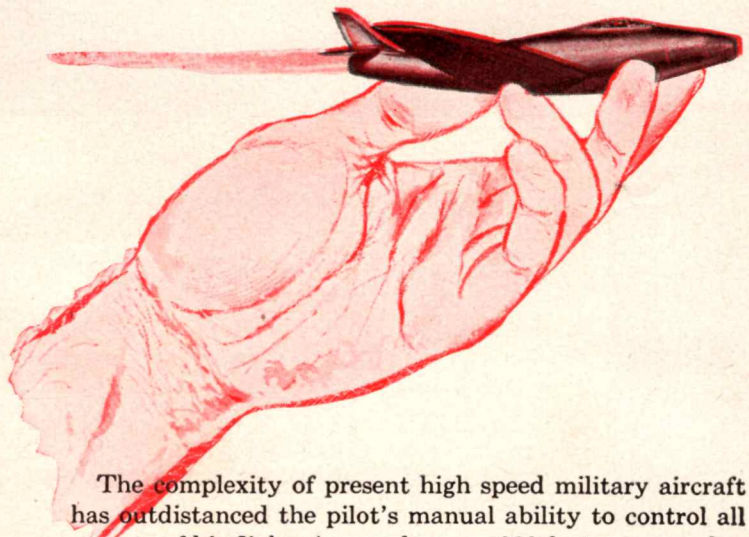

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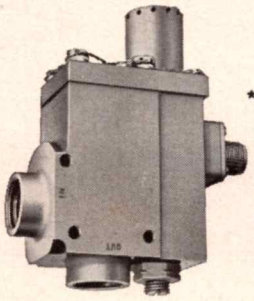
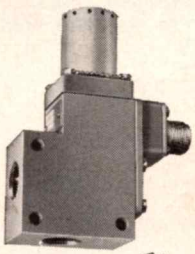


*25853 PILOT OPERATED.
NORMALLY CLOSED.
⅜" and ½" LINE SIZES.
Operating pressure: 3000 psi.
Weight: 1.45 lb.
(Also available with manual override or normally open.)



*26610 PILOT OPERATED.
NORMALLY OPEN.
¼" and ⅜" LINE SIZES.
Operating pressure: 3000 psi.
Weight: 0.81 lb.
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*High Flow Capacity Valve with filtered pilot circuit.

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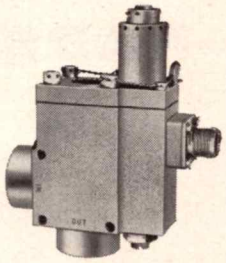

*25670 PILOT OPERATED. WITH MANUAL OVERRIDE.
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Weight: 1.58 lb.
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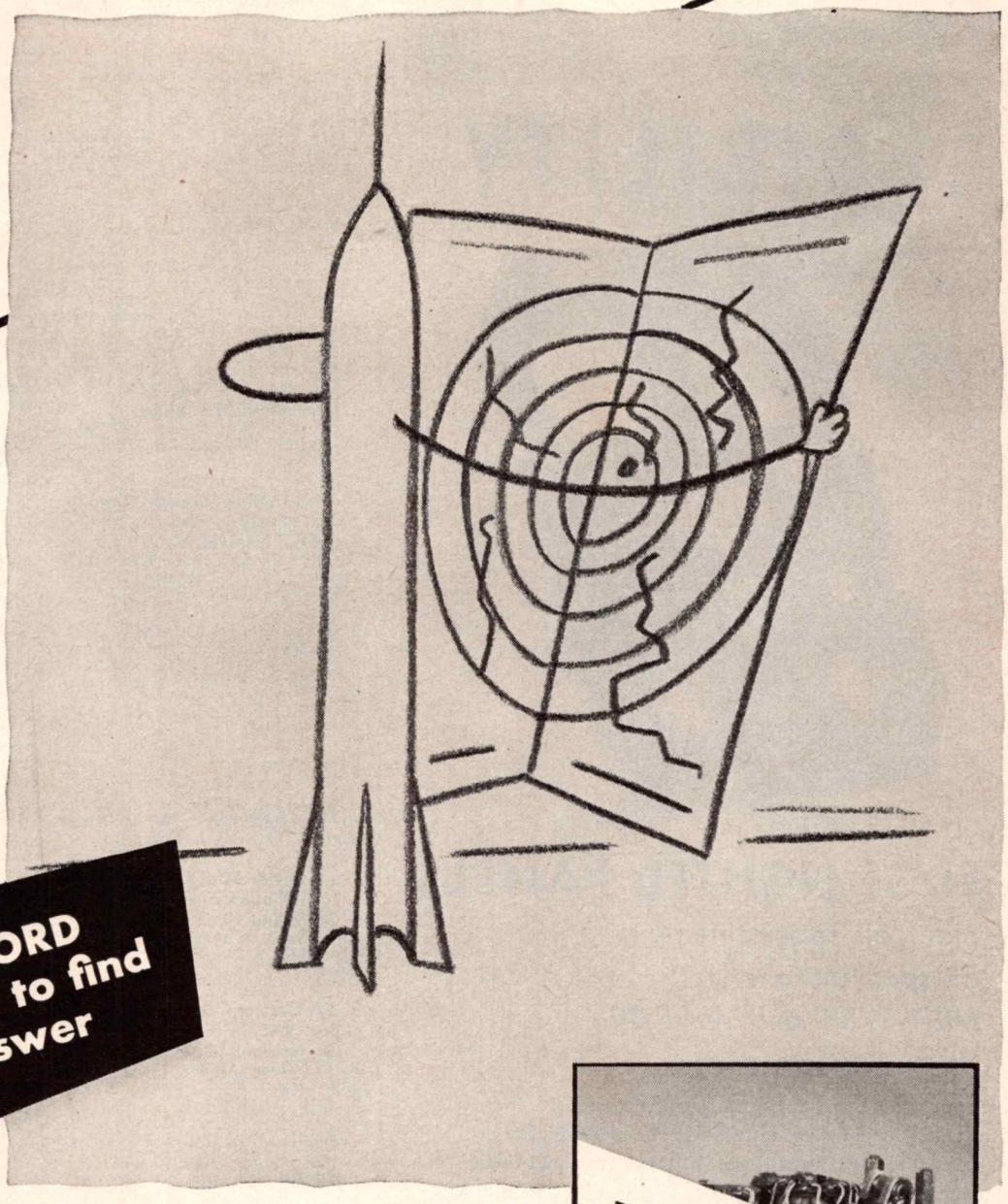
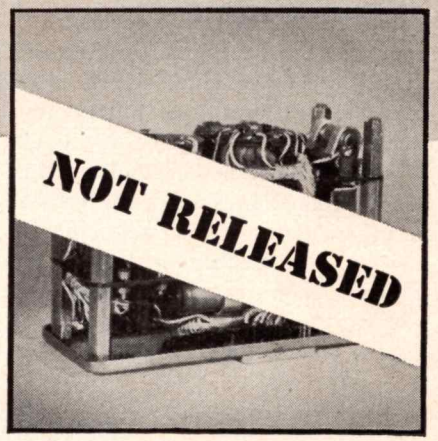


...and FORD was asked to find the answer



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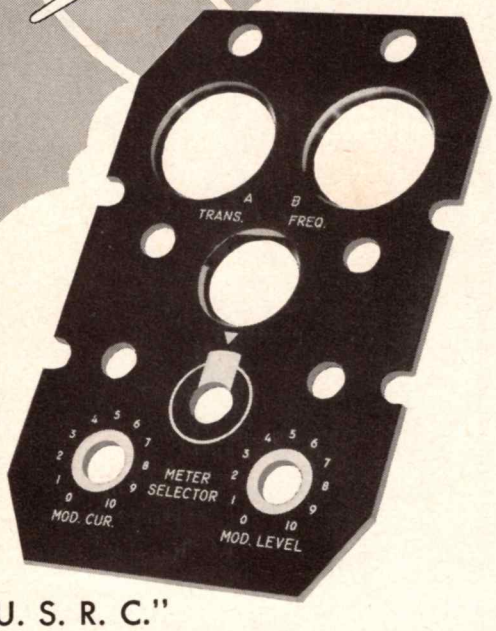

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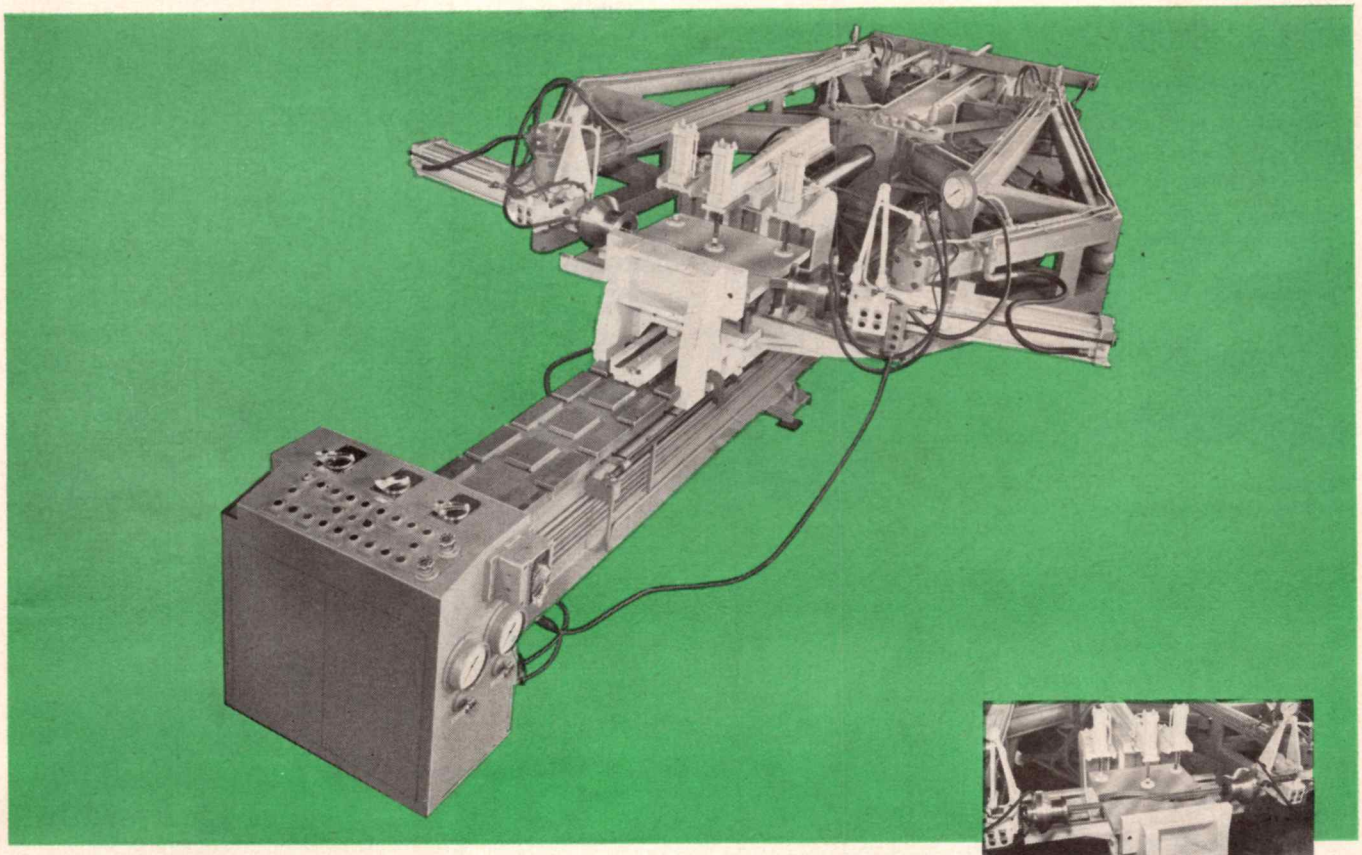

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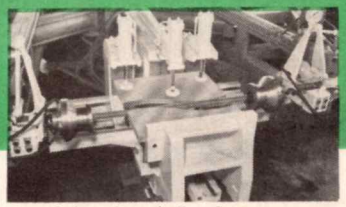
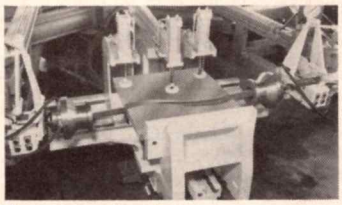
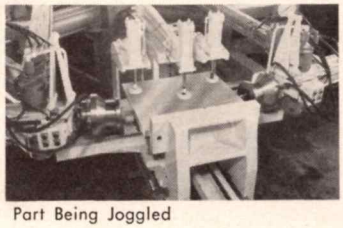


Part Before Stretch Forming



Part during Stretch Forming



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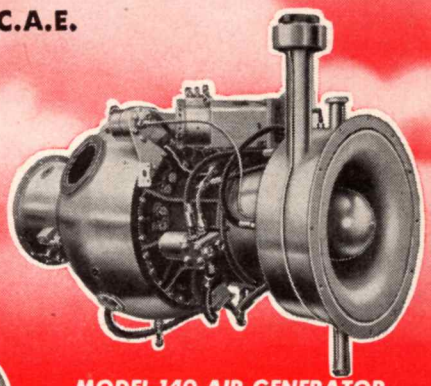

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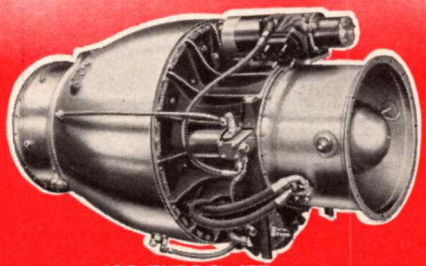

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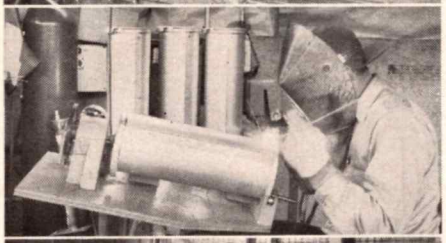

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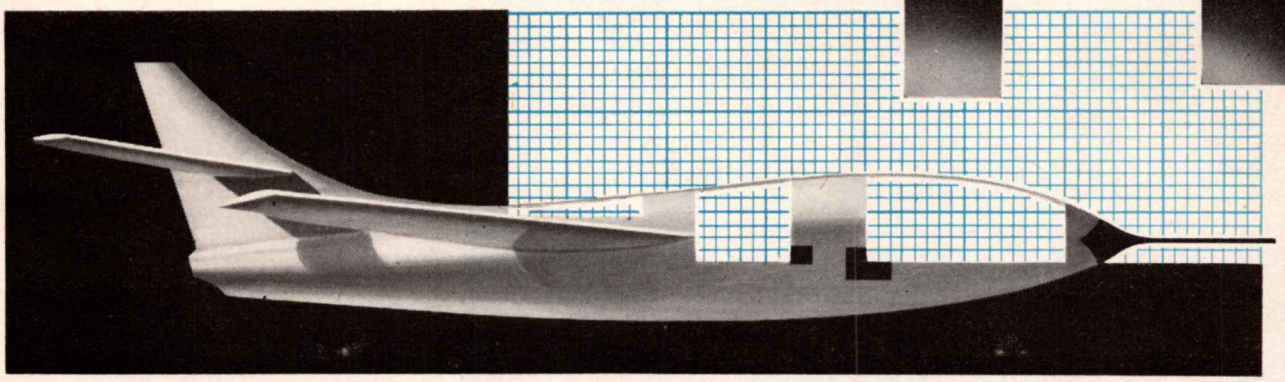

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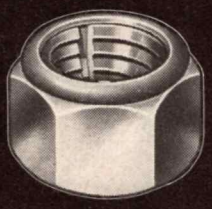

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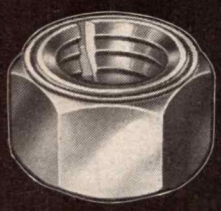

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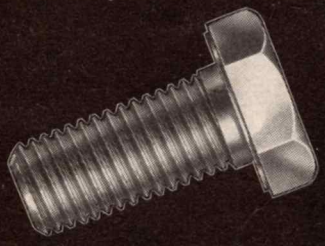

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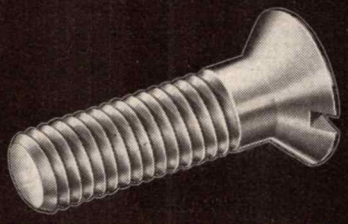

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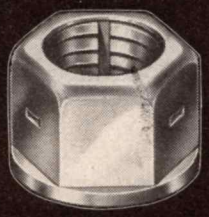

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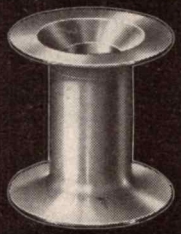

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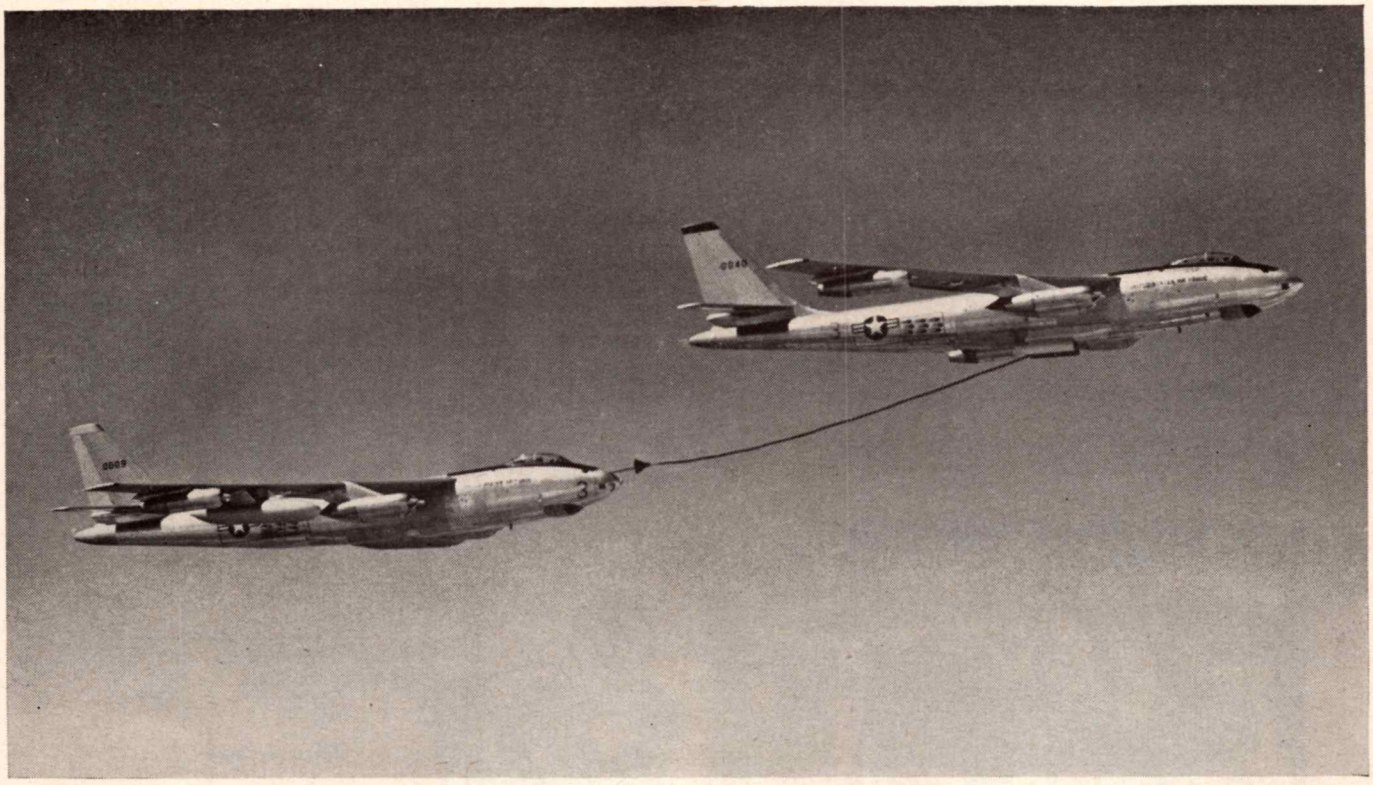

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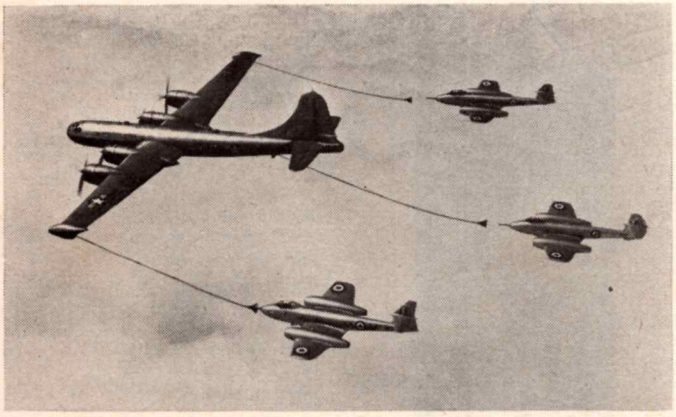

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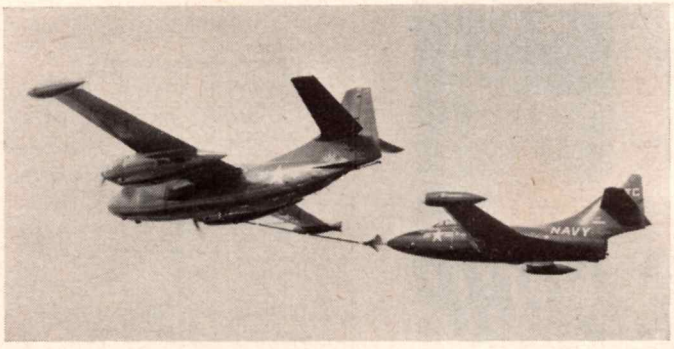

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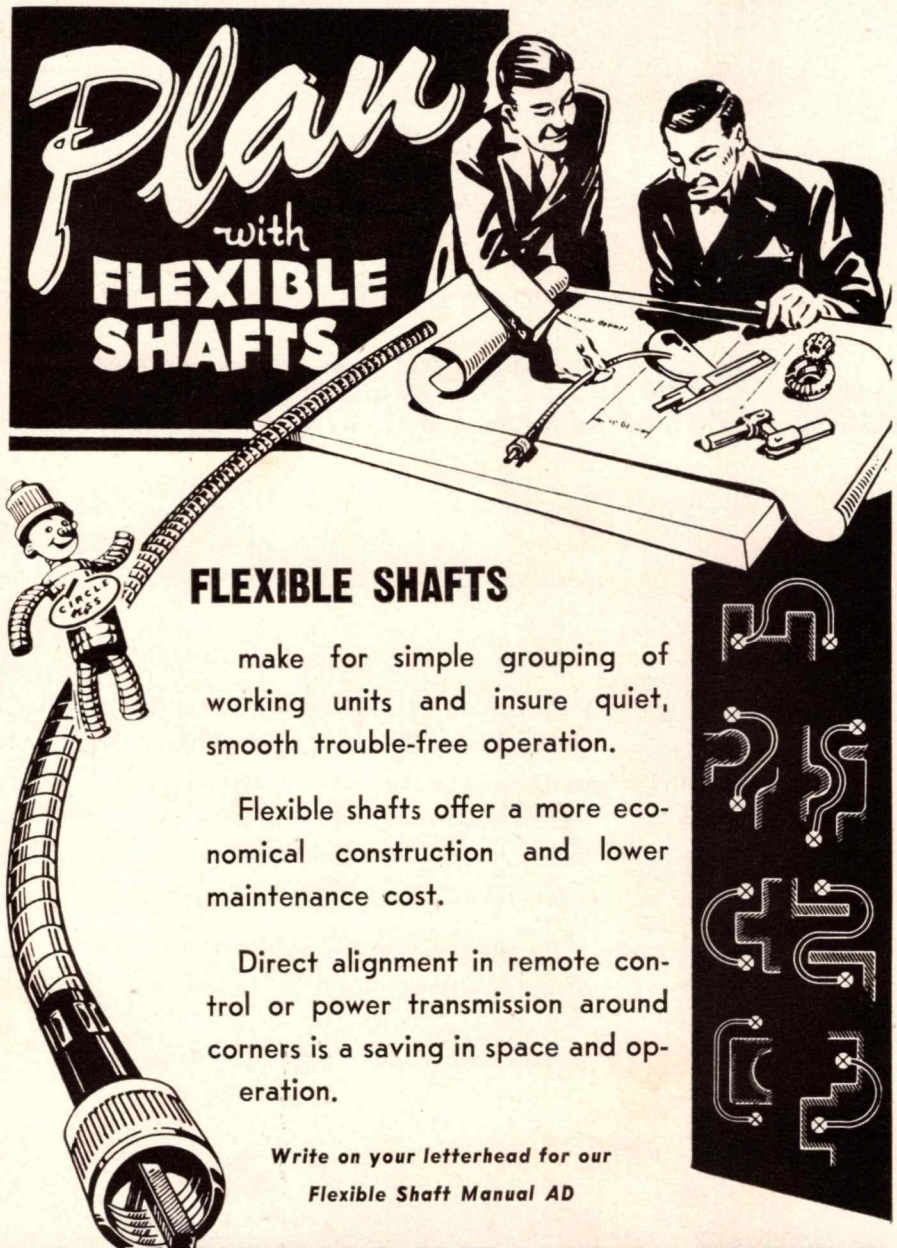

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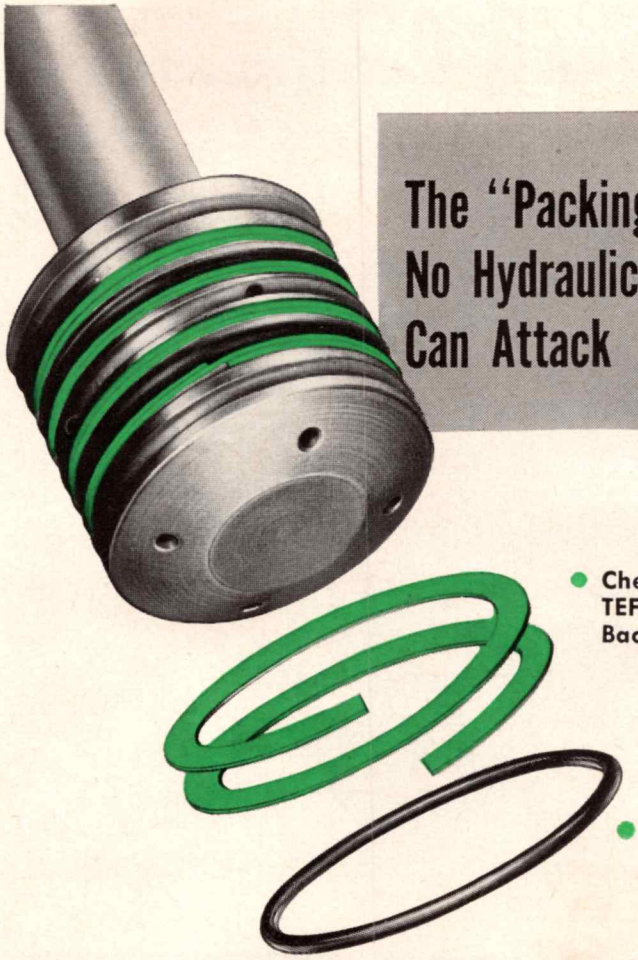

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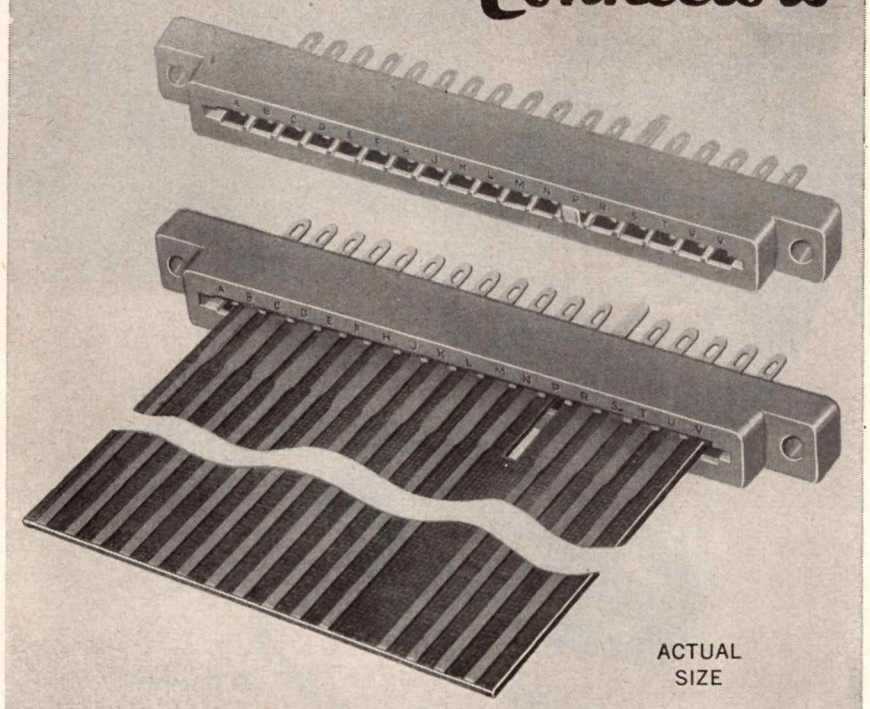

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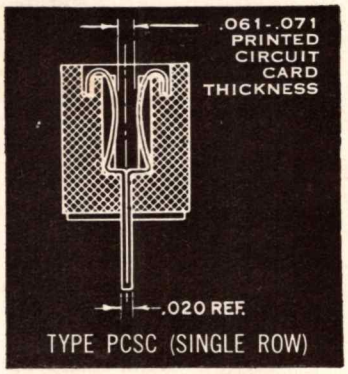

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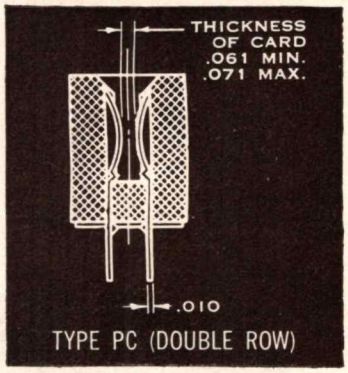

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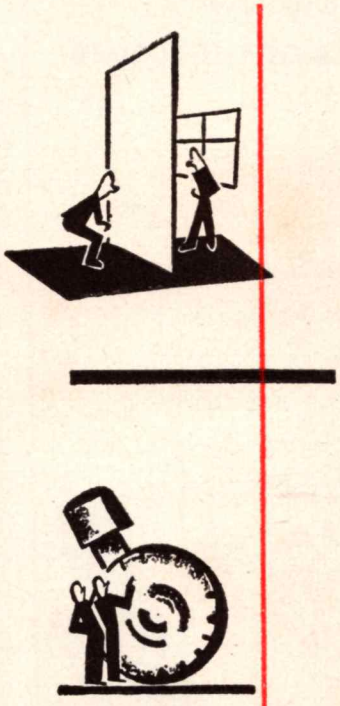

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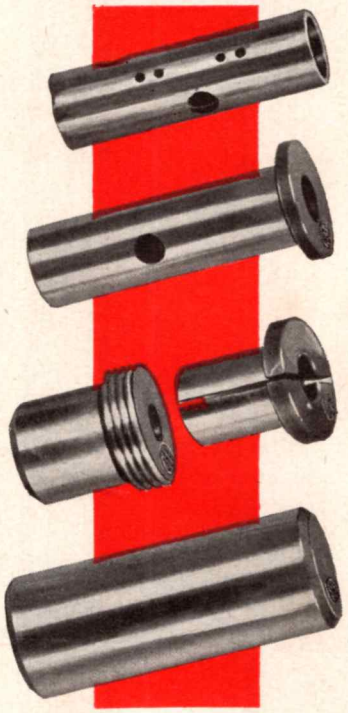

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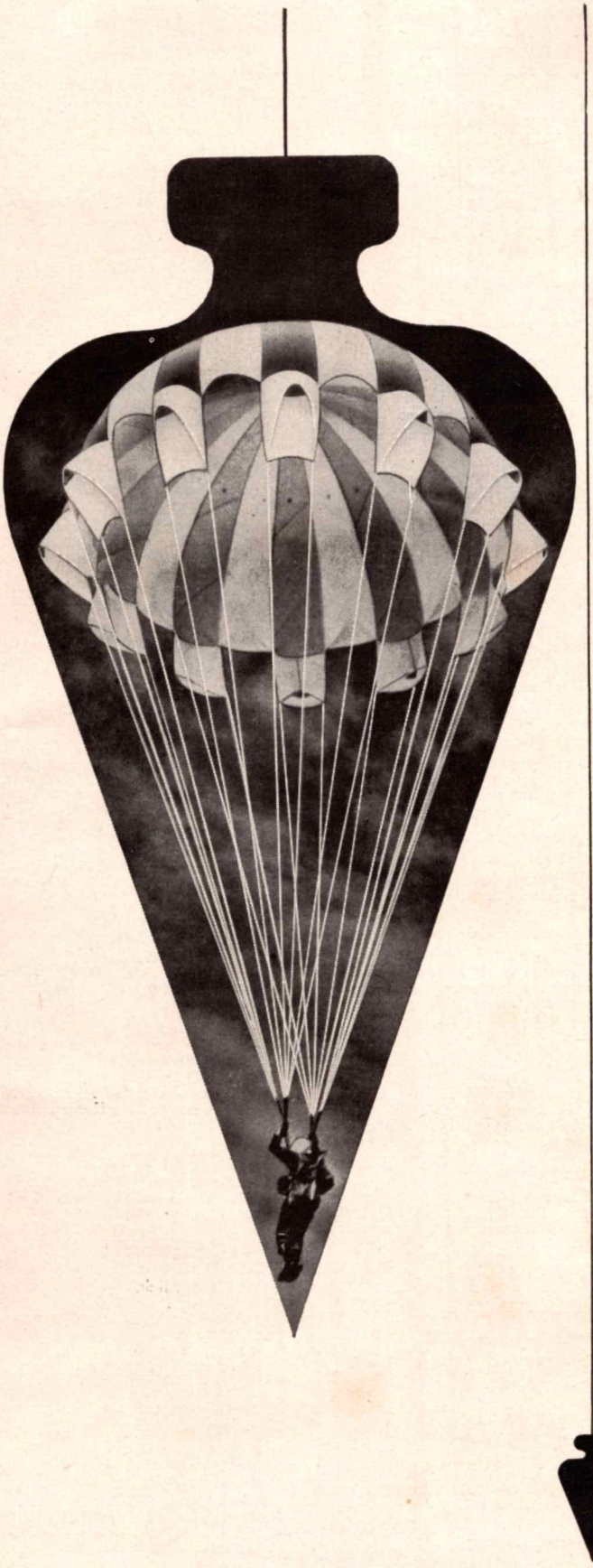

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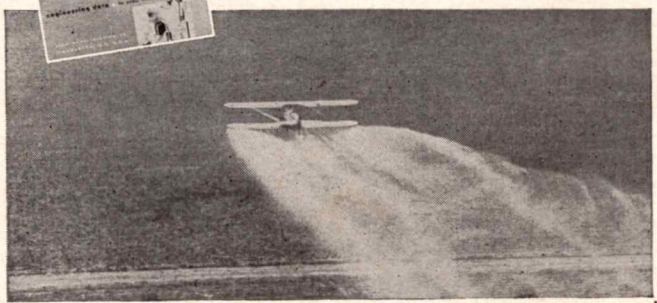

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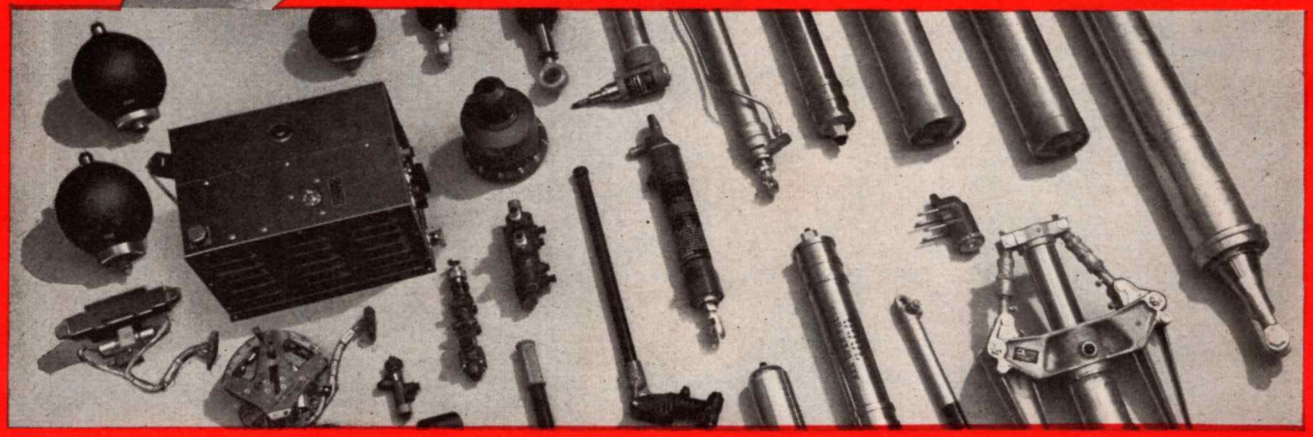

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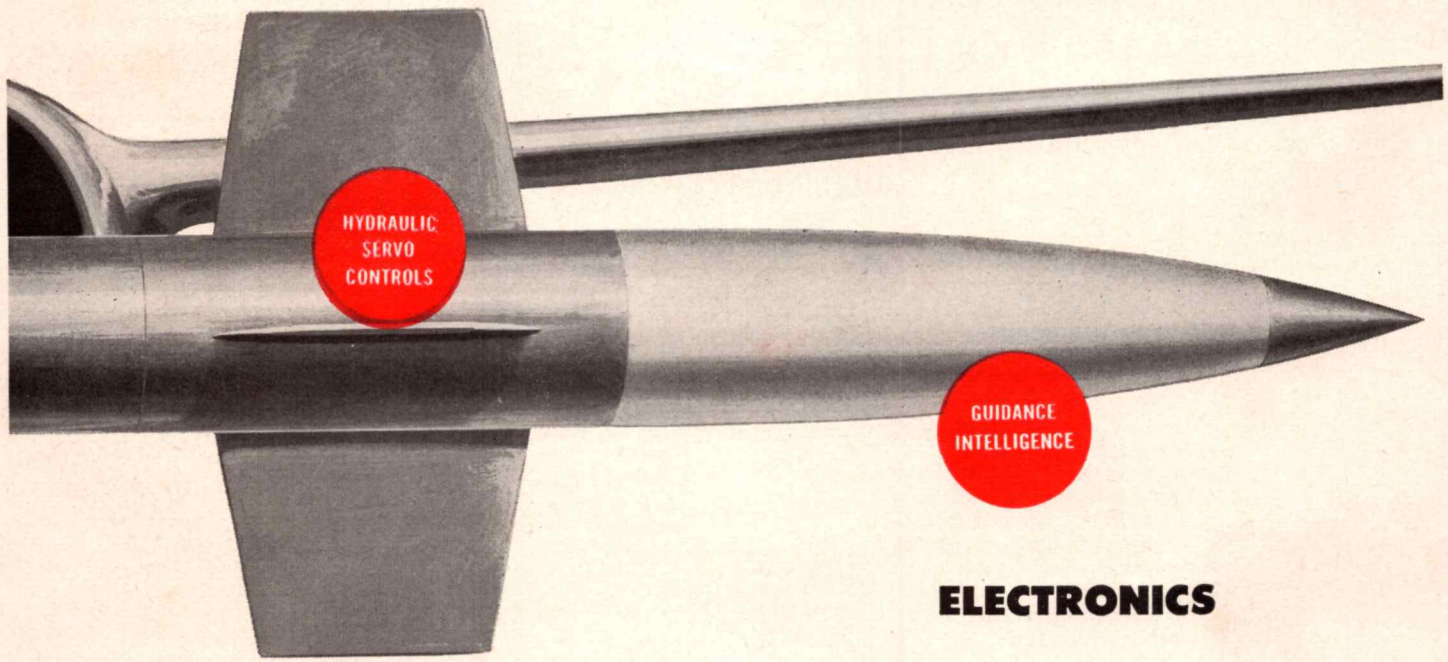

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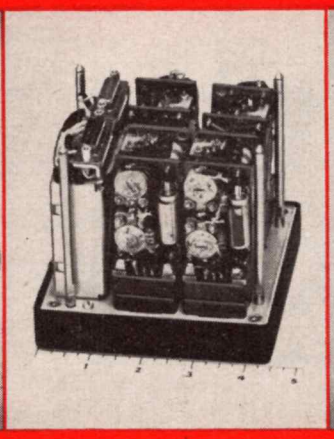

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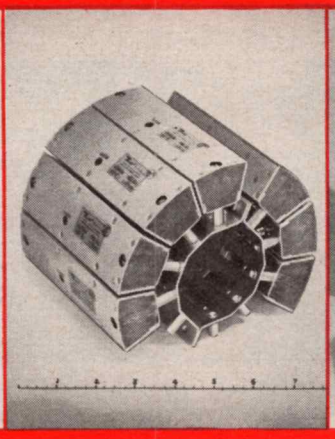

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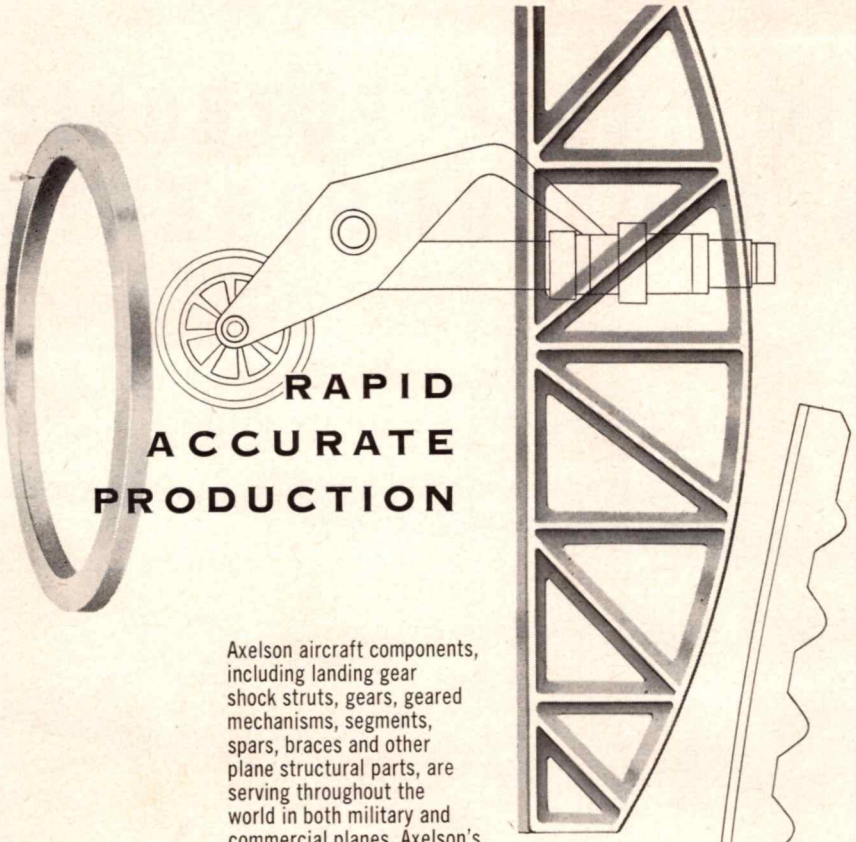

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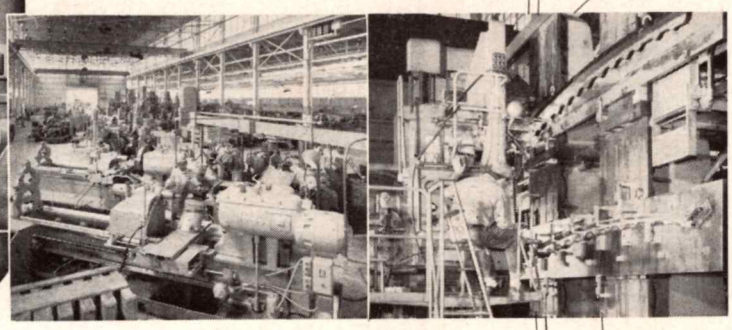

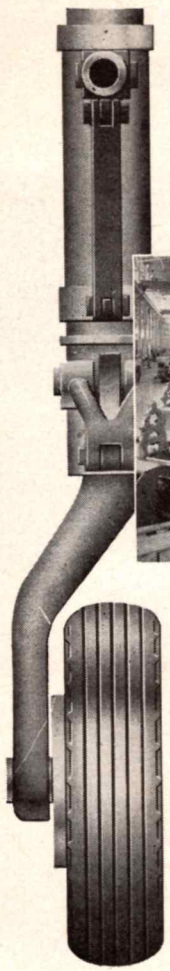

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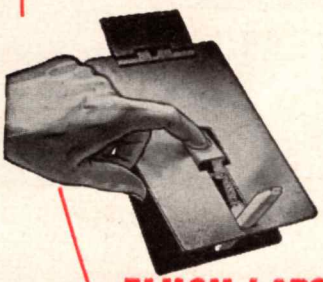

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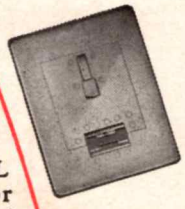

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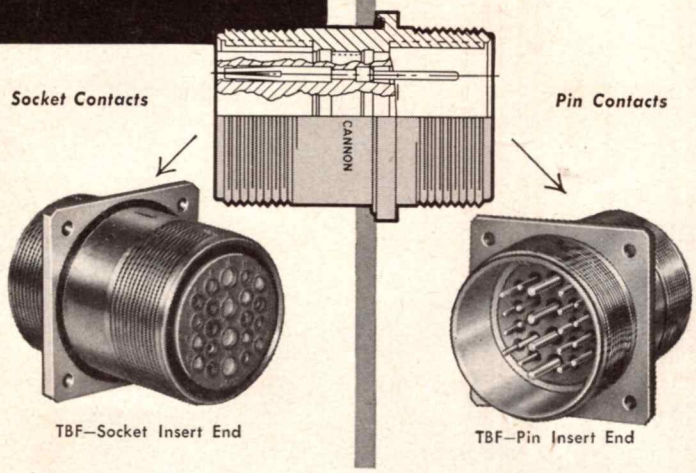

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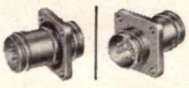

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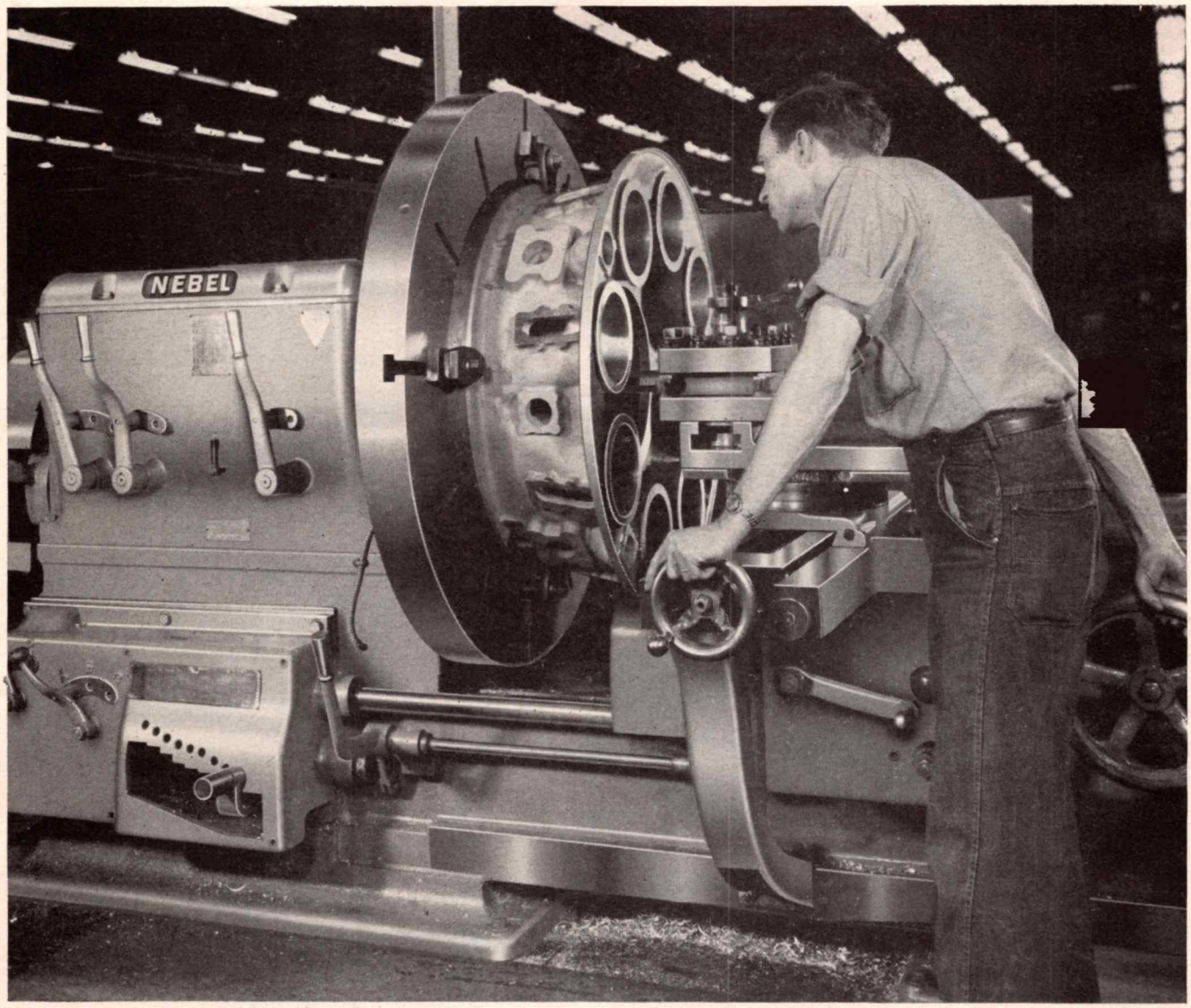

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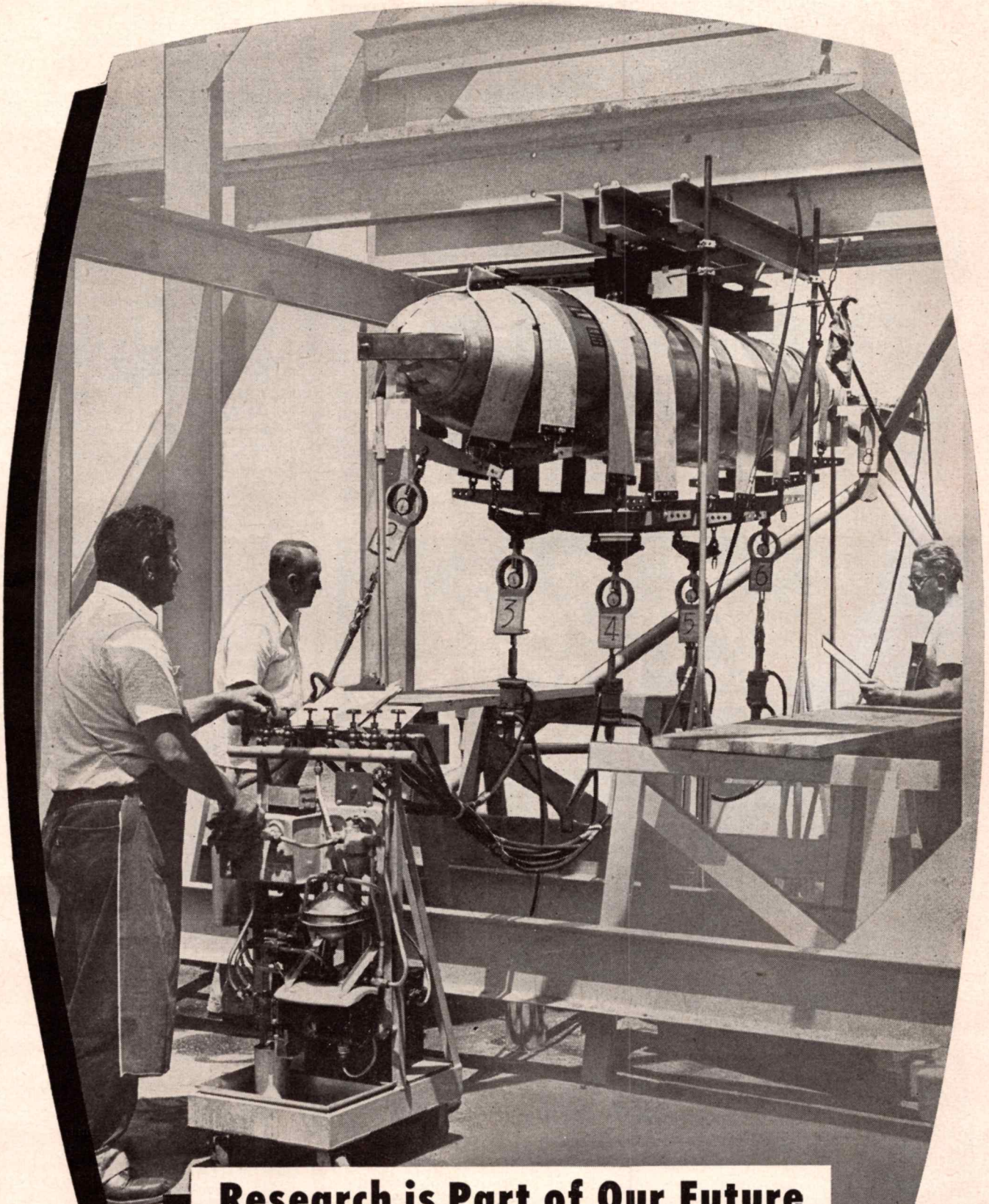

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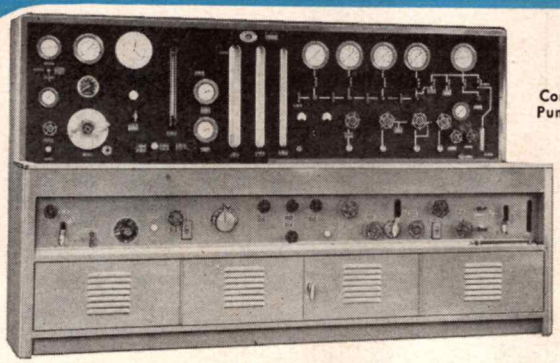

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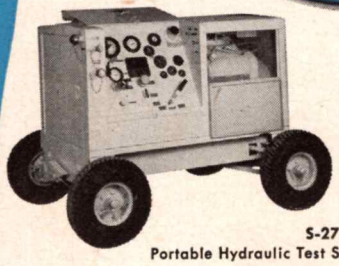

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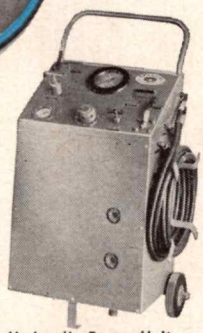

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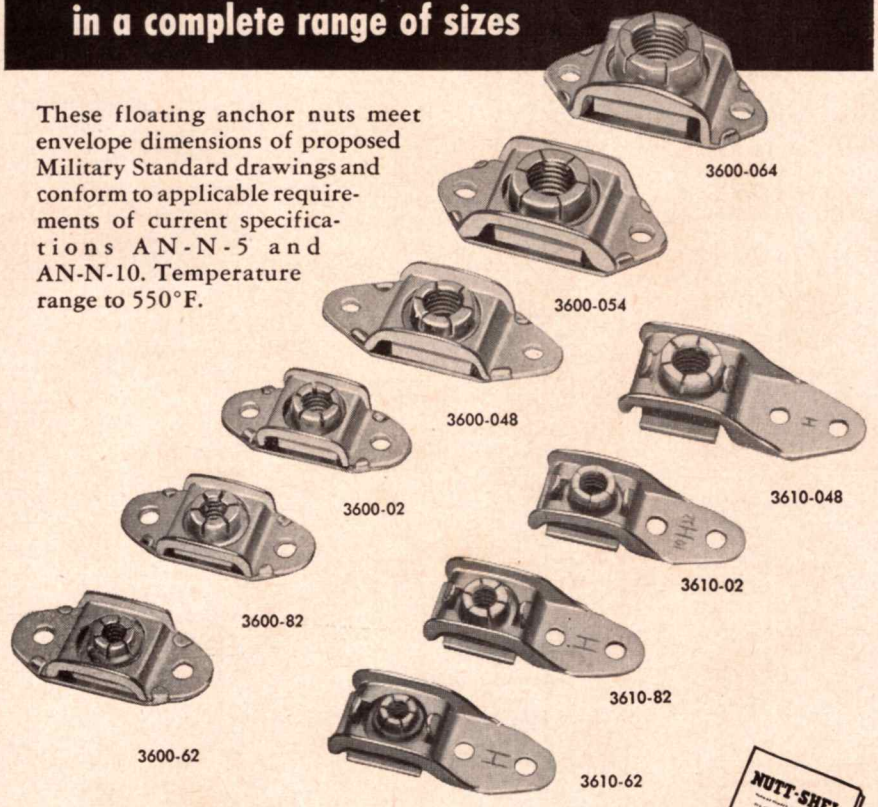

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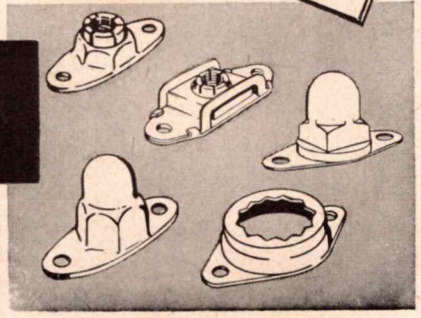

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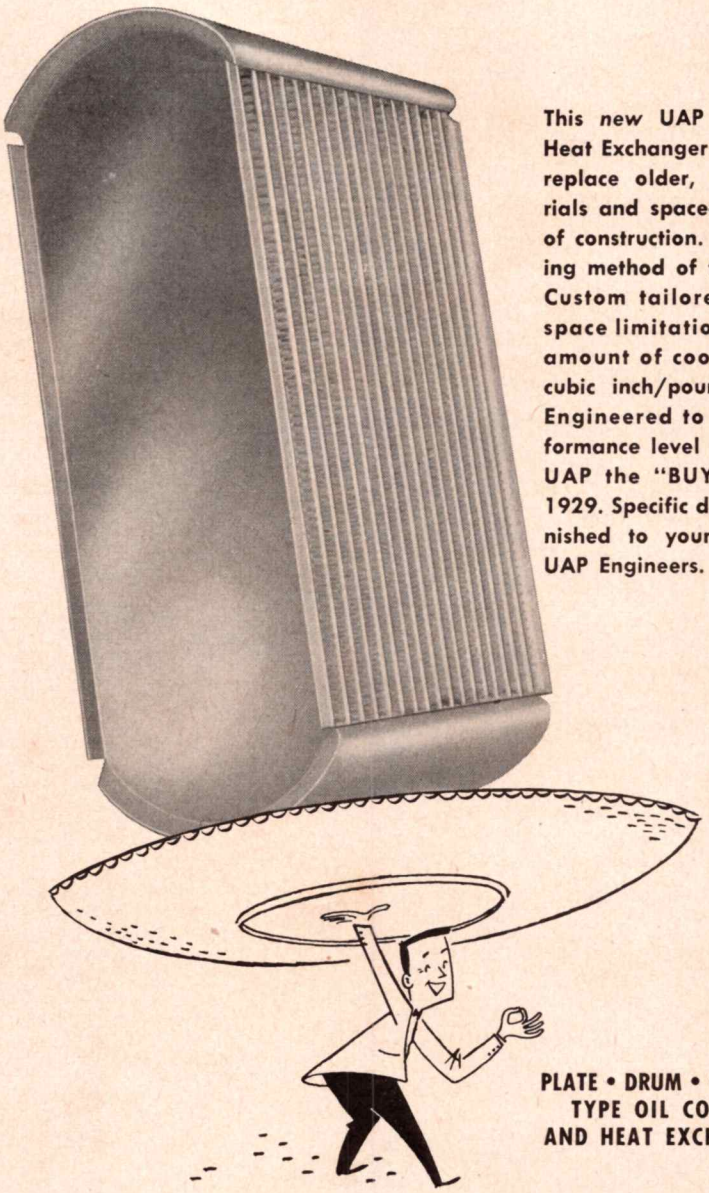

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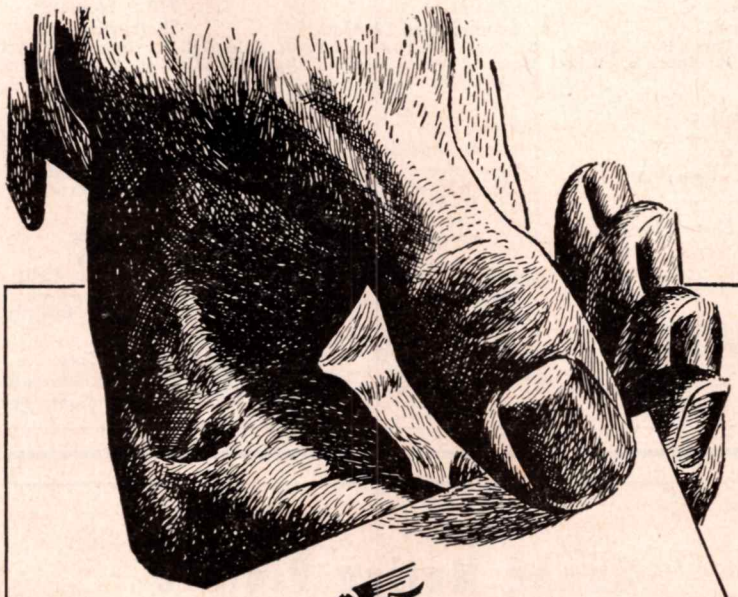

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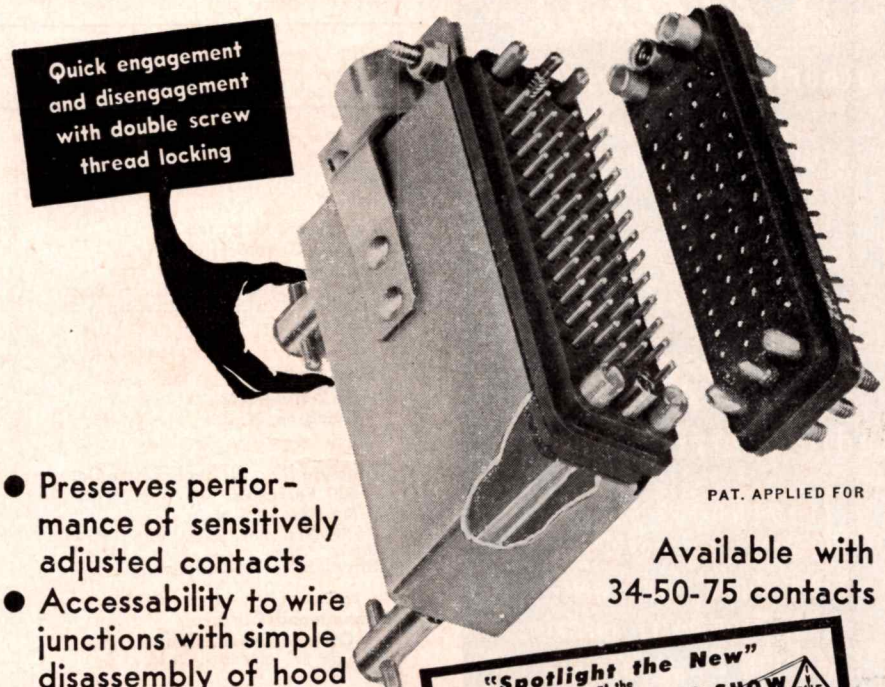

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In the spring of 1907, a college associate of mine, F. W. Baldwin, and myself were guests at Dr. Bell's home where we took part in his kite-flying experiments along with Lieut. Thomas E. Selfridge of the U. S. Army, who was on leave at the time.

Mrs. Bell proposed that an association be formed by us to attempt to develop a flying machine. Dr. Bell was very much taken with the idea. A constitution was drawn and a name was selected—the "Aerial Experiment Association." We went to Halifax to have the organization properly attested, not only by a Canadian Justice of the Peace, but also by the representative of the American Government who lived there.

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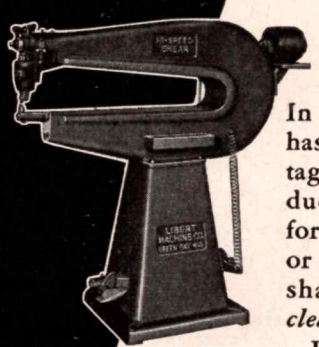

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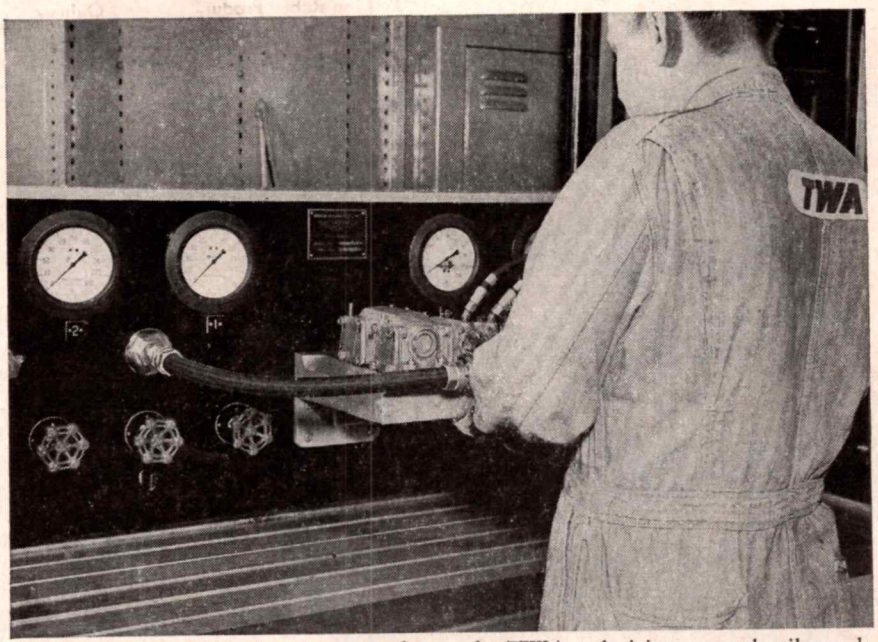

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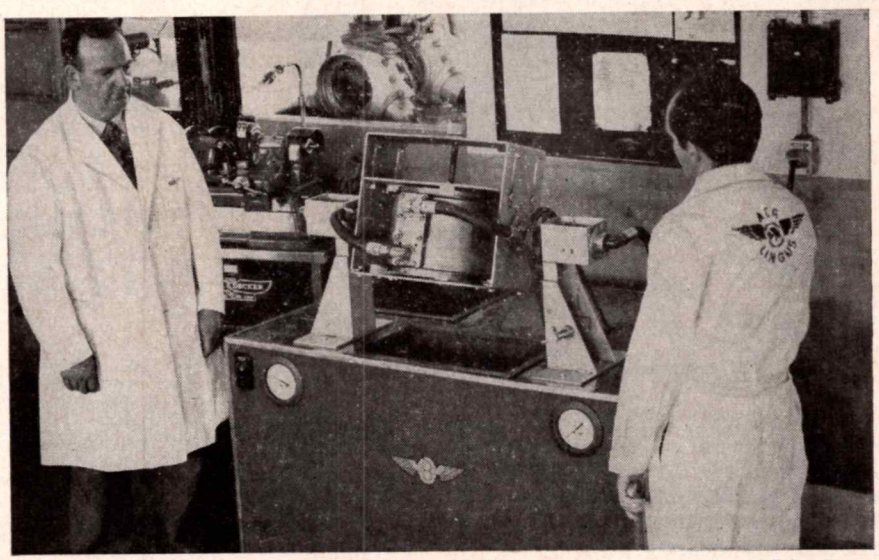

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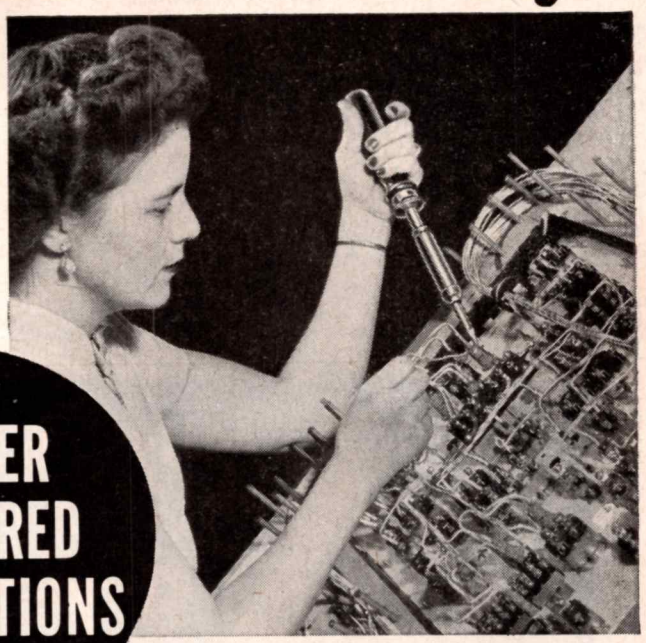

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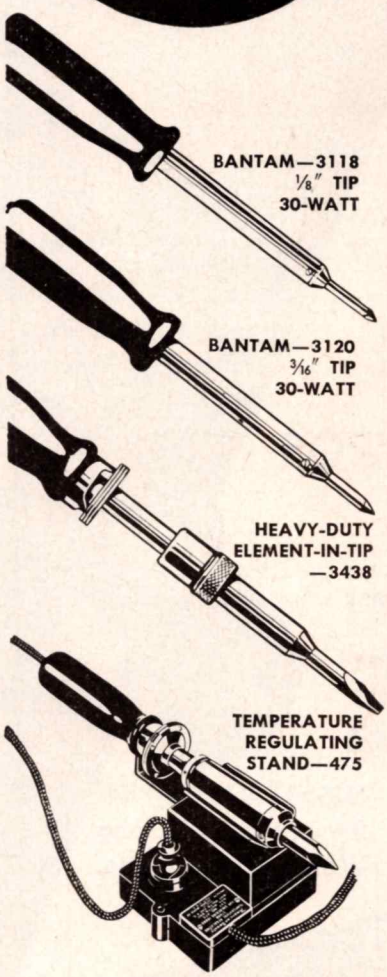

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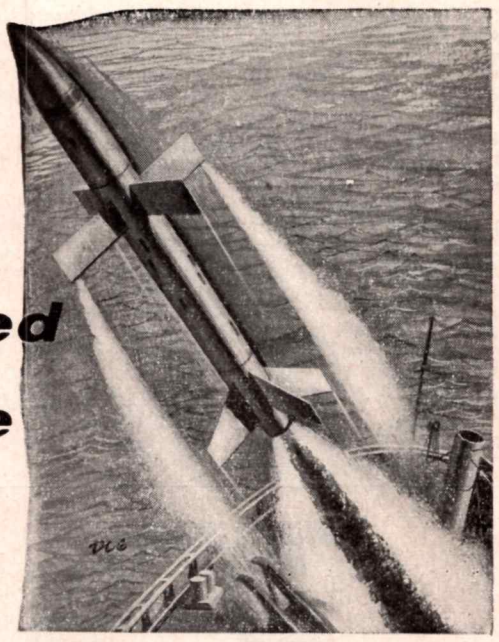

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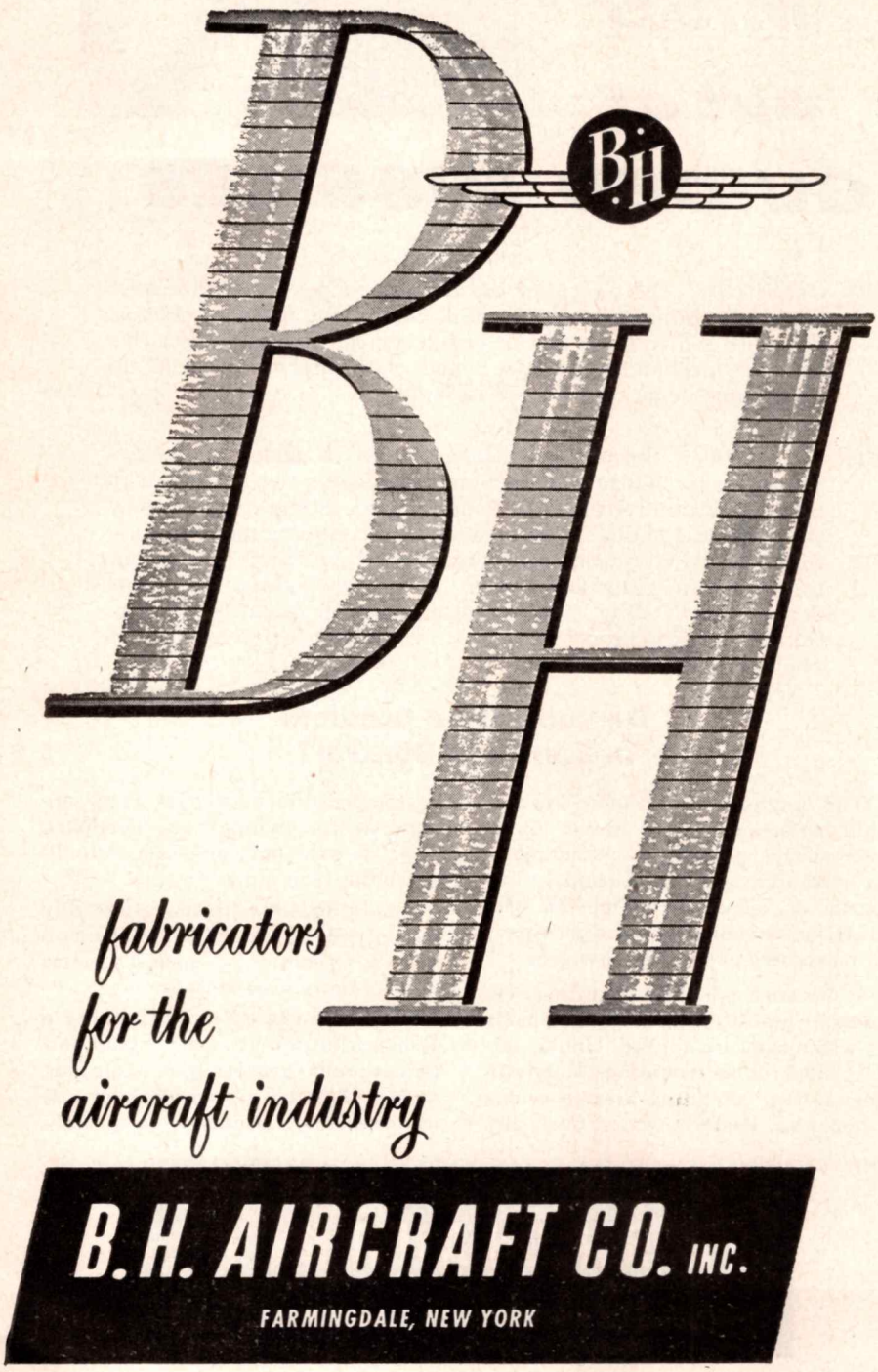

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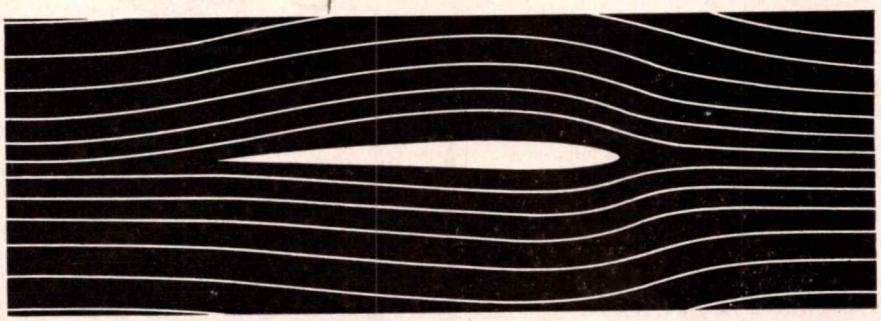

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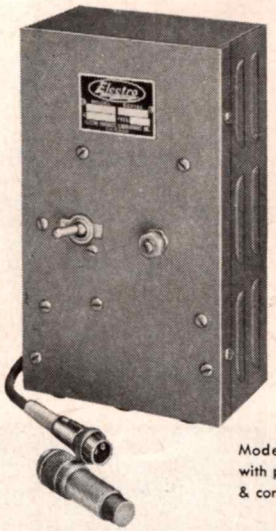

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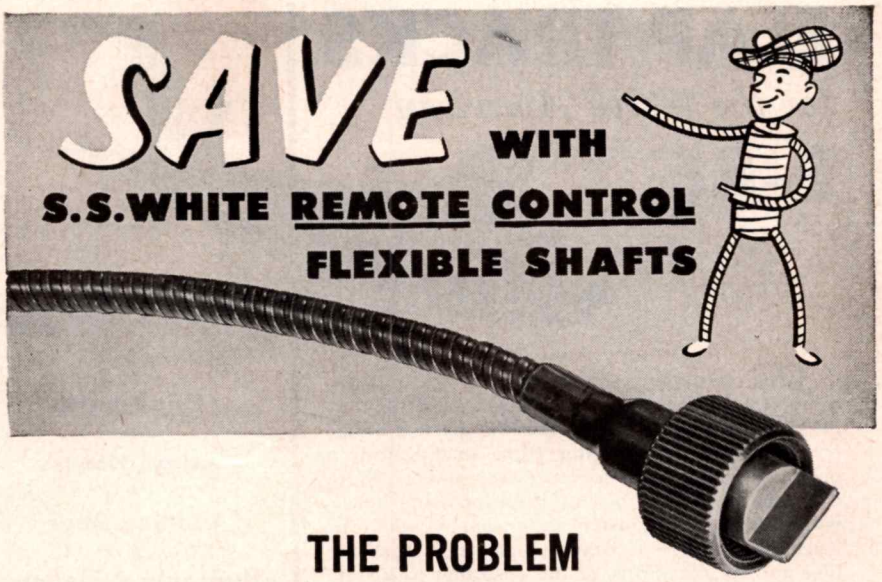

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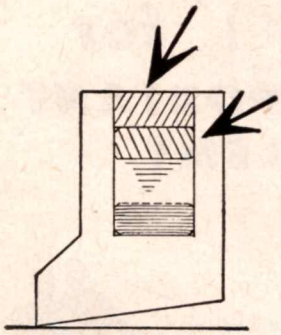

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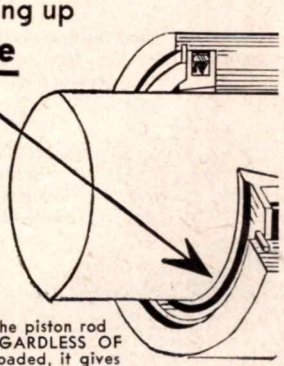

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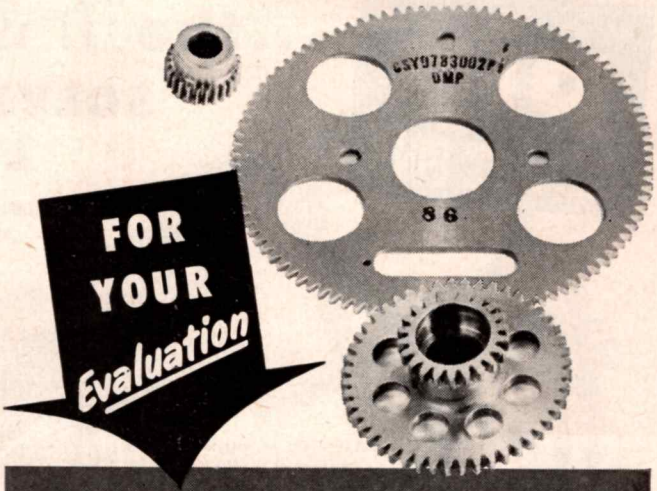

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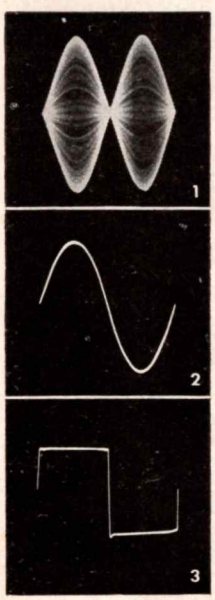

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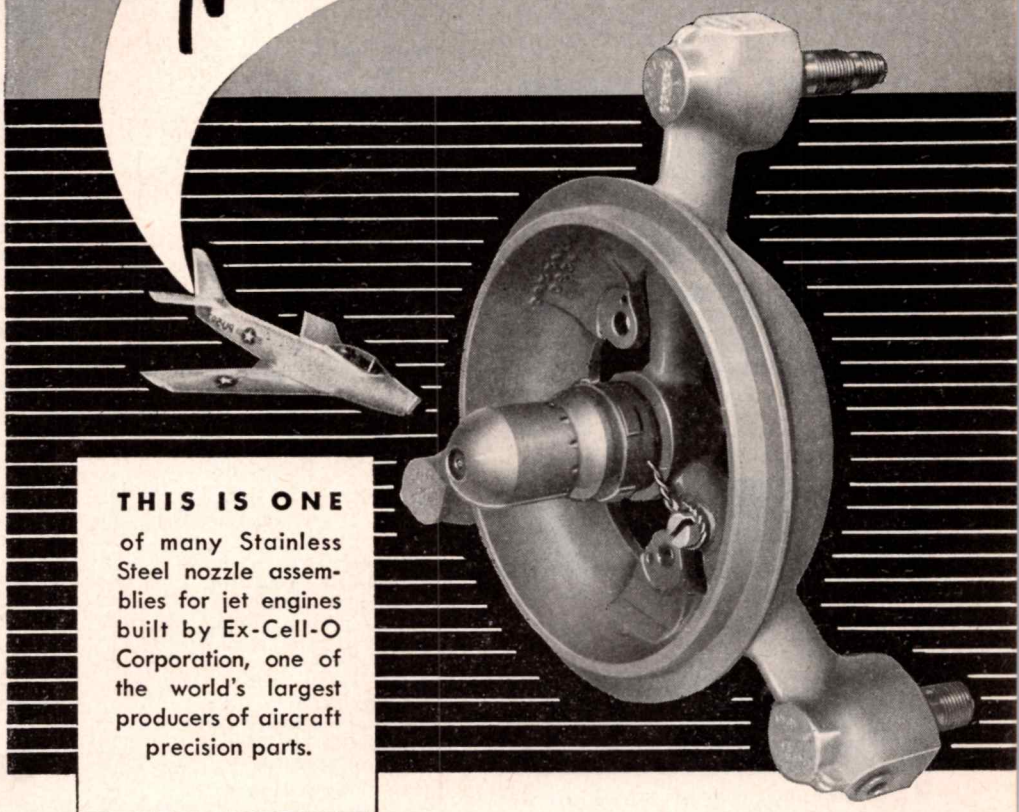

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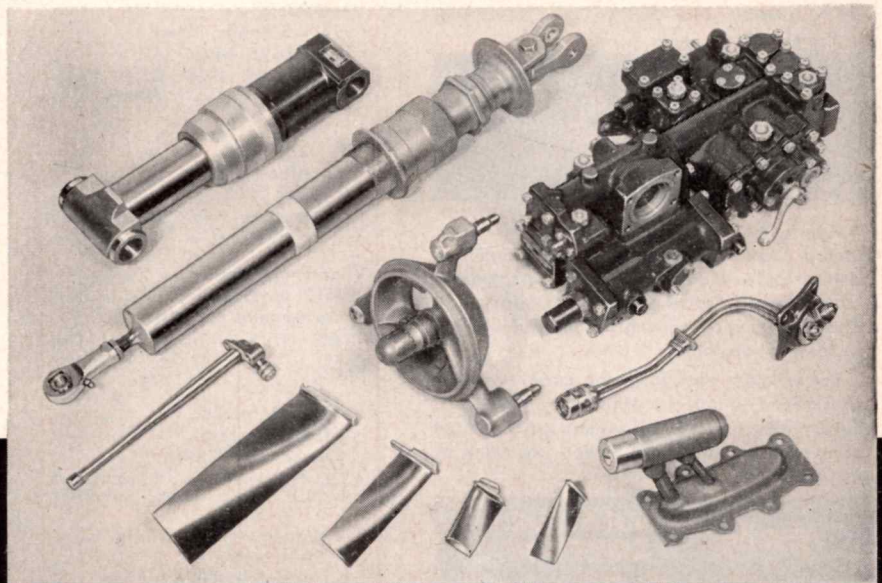

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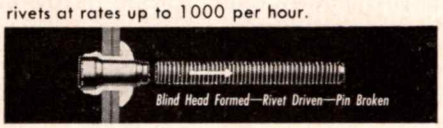

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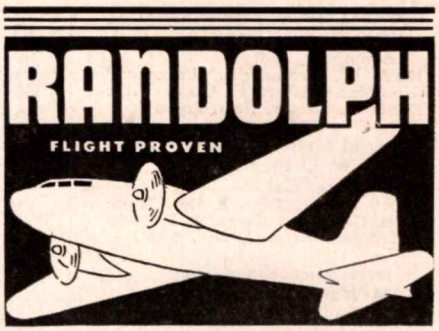

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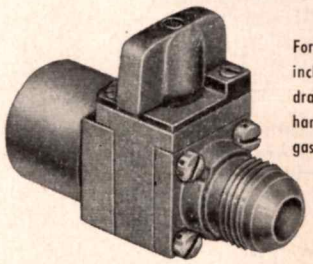

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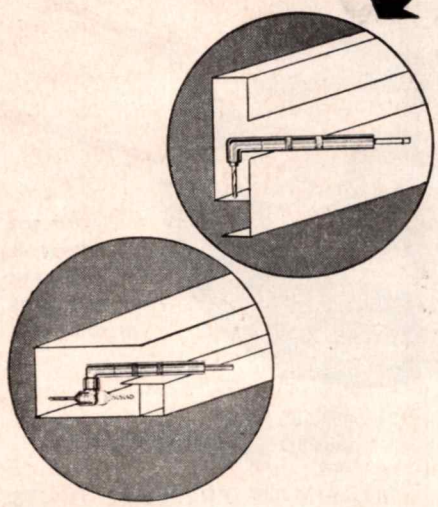

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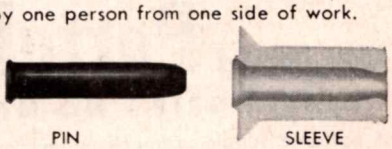

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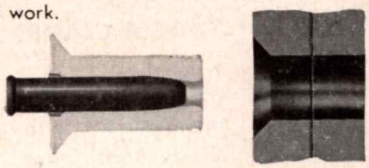

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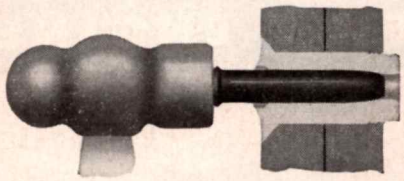

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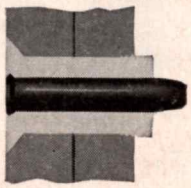

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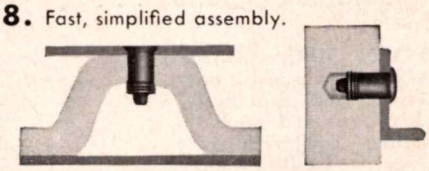

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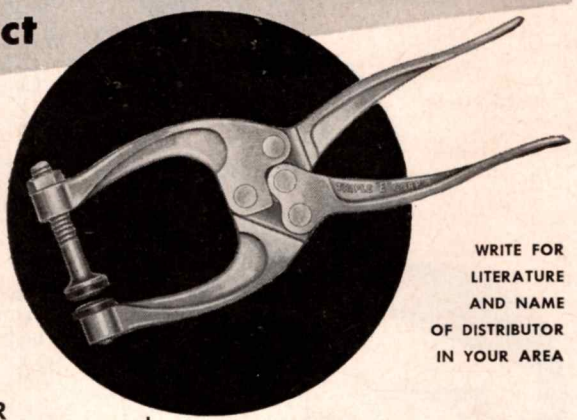

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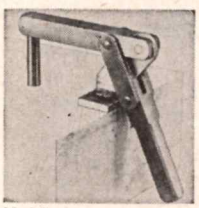

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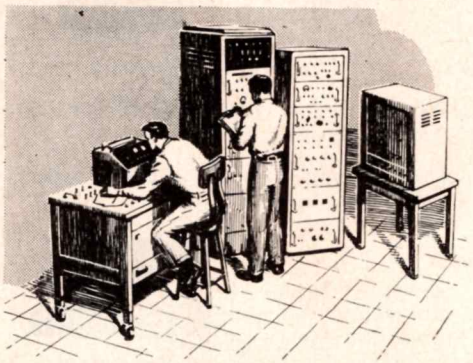

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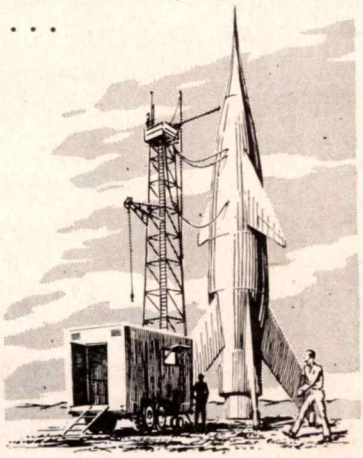

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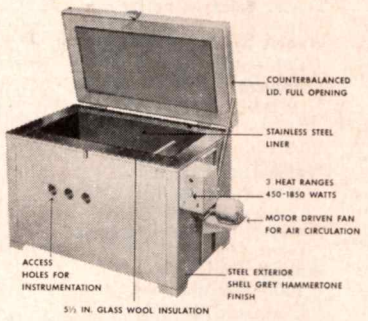
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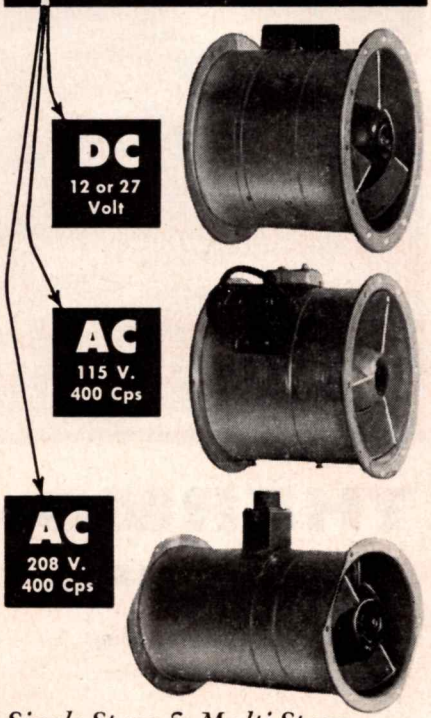

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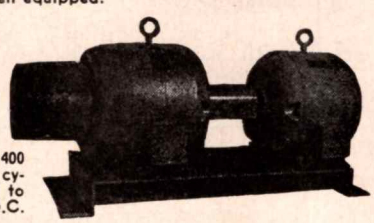

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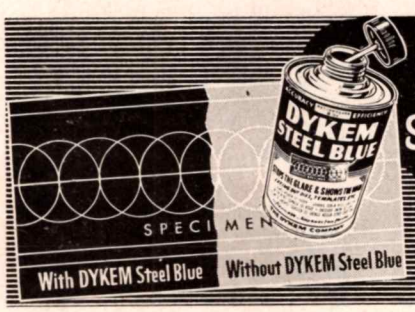

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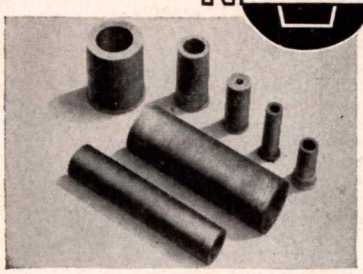

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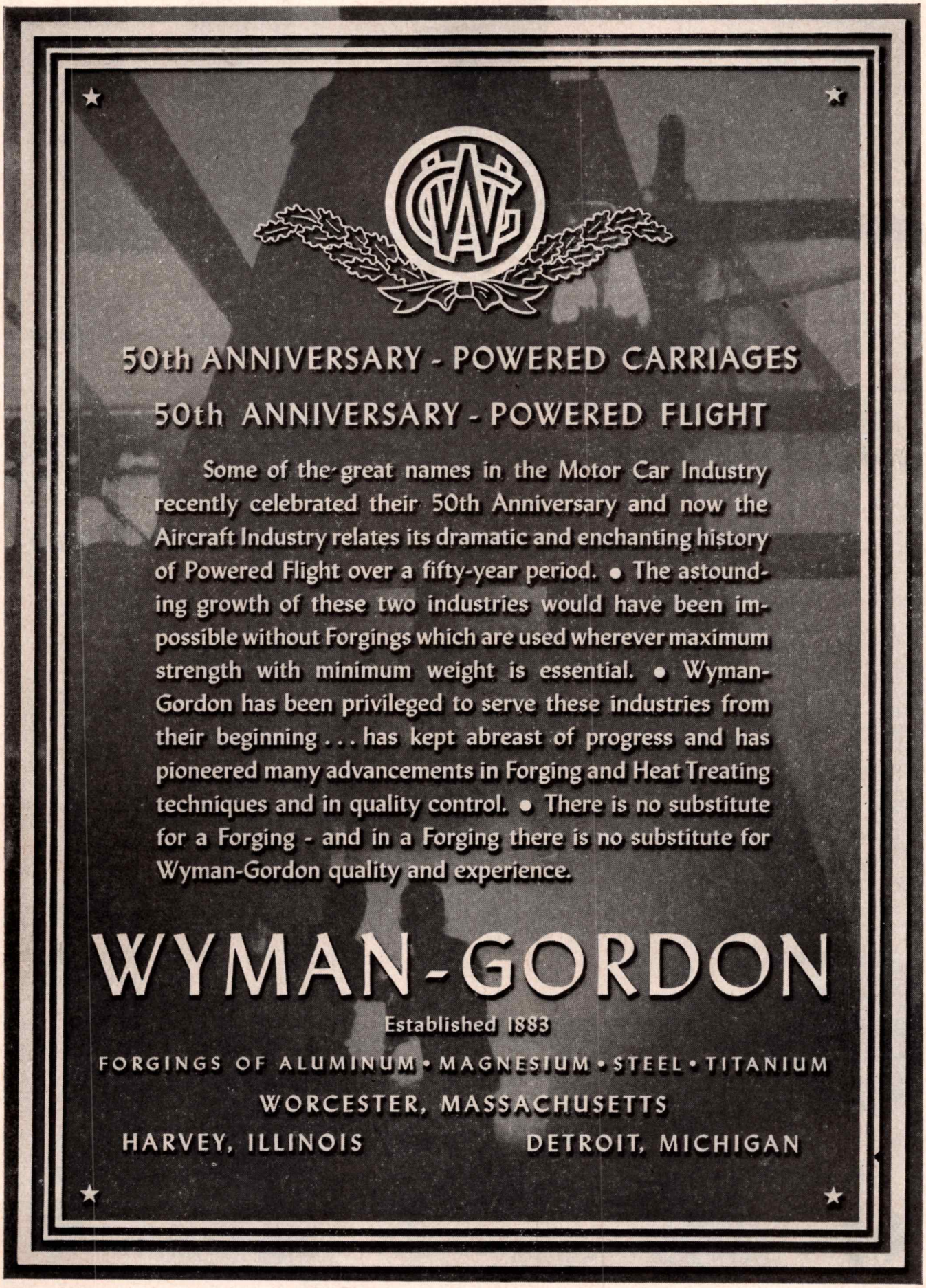
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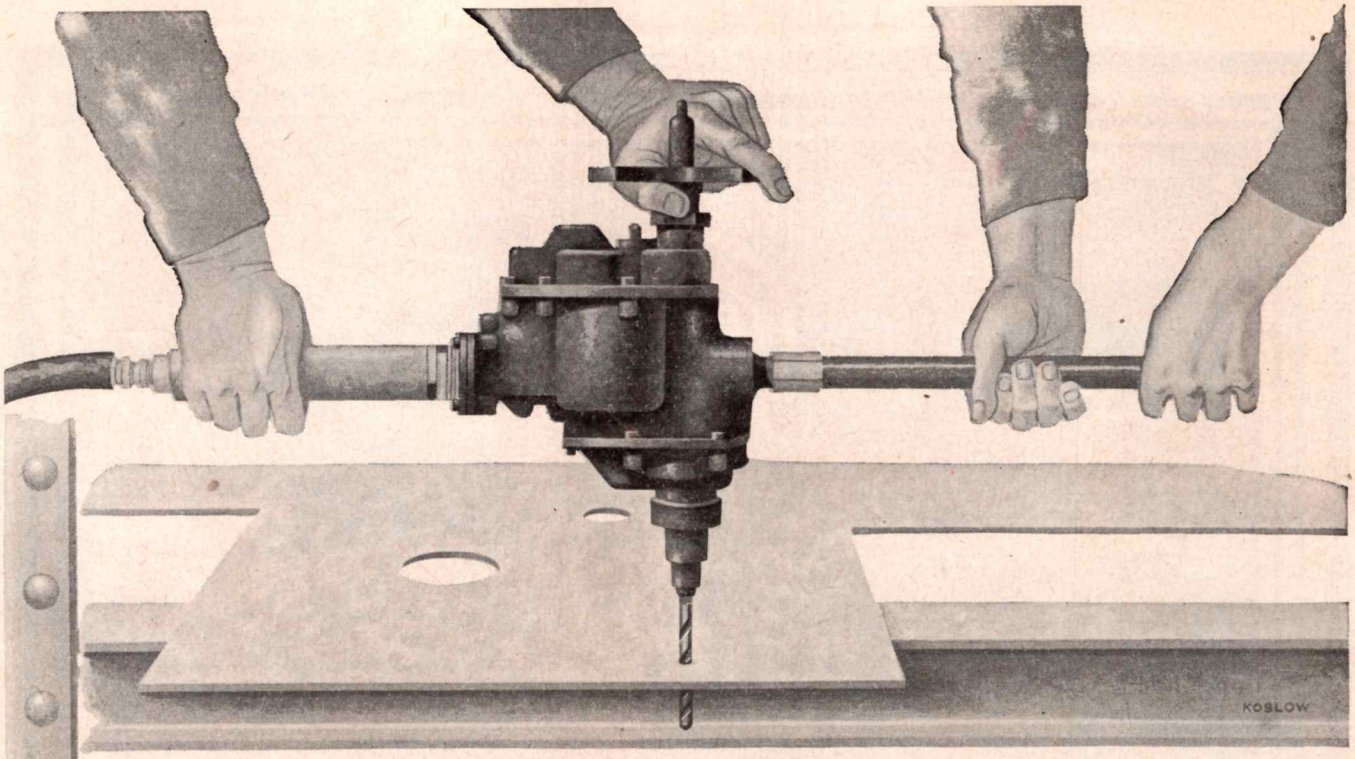

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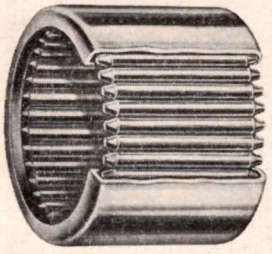

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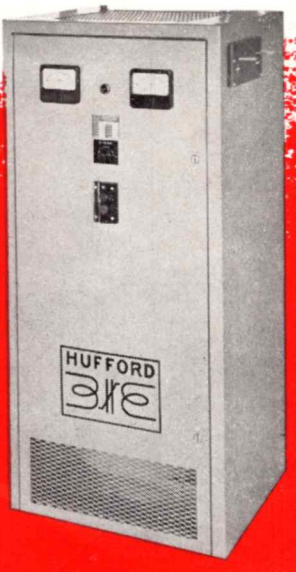

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EXCELLENT VOLTAGE REGULATION—Within ± 1% from no load to full load, with line voltage fluctuations of ± 10%.

FAST RESPONSE—Recovery time under extreme load changes within 0.2 seconds.

LOW RIPPLE—Filter section effectively removes A.C. ripple to less than 1% r.m.s.

These power supplies are equipped with *magnetic amplifier voltage regulators* which are wear-free, extremely rugged, reliable and completely insensitive to vibrational damages or burn-out failures.

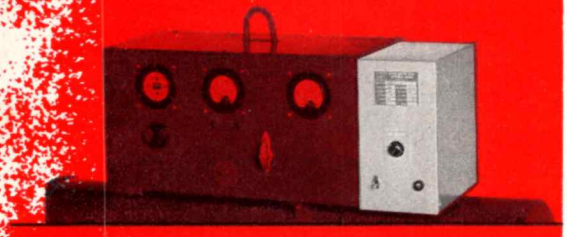
Built-in forced air cooling system insures efficient operation at full loads. General design emphasizes neat, in-line assembly and wiring, improving accessibility of all components. Quotations on individual requirements gladly given.

Far better

VOLTAGE REGULATION

from your present D.C. generator with

HUFFORD ROTA-MAG



This new Hufford development improves performance of all D.C. generators by providing *superior voltage regulation up to the full generator capacity!*

With suitable generators performance is equivalent in electrical characteristics to the most modern power supplies!

ROTA-MAG is complete, self-contained, ready to mount. It may be adjusted for any generator output voltage.

REGULATION: ±1% over full rated generated capacity.
RESPONSE: 0.2 second with application of full load.

Literature available!

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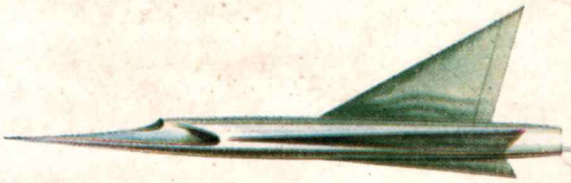

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